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IMPERATIVE NEED OF UNION OF THE MEDICAL PROFESSION AND THE HEALTH AUTHORITIES *

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One of the big medical problems at the present time is the securing of a closer union between the physician and the legally constituted health authorities. Actions of the past have brought out prominently the fact that too many physicians look on the health officials as police officers, rather than as aids to the service the profession is rendering.

All laws for the regulation of health give a rather positive control—positive only, however, because of exceptional conditions which may exist.

Much has been accomplished, the evidence of which is on record in the morbidity and mortality reports of the vital statistics bureaus of both state and nation; but in no community have the accomplishments been such as the medical profession or the health officers would desire.

The success of the future depends, as our title states, on a closer union between the physicians and the duly constituted health authorities. We might solve this problem very easily if we had in the United States a 100 per cent. efficient medical profession. Both you and I appreciate when this statement is made that it is true. Until that time does come, however, those doing their best must strive to accomplish more. If the medical practitioner could disabuse his mind of the idea that health authorities *order* anything done, the two bodies would come much closer together.

Rather than the health department giving orders to the medical profession, it would be more seemly for the physicians to give instructions to the health department. A combination of that enormous power enjoyed by the physician in his own community (that power being public opinion) and the lesser power of legal authority enjoyed by the health officer can accomplish almost anything. A union, therefore, could be very easily effected if the medical profession appreciated these facts. The operation of this union would be a specific recommendation. For instance, the county medical society with problems in the community could solve them in a definite way, the county medical society to outline the way. These directions, forwarded by the society to the health officials, would call for either an acceptance or an explicit reason for rejection.

Too many problems are inadequately solved from a central office point of view, not because the central office wishes to exercise undue authority in so doing, but because of a lack of authentic field information. Many of the differences of opinion which exist between the physicians and the legal medical body could be easily solved by a personal interview. It would be wise, therefore, if more physicians would visit those whom they regard as dictators and discuss with them these differences.

Too often pamphlets, bulletins, circulars, textbooks and moving picture films are the only means of communication between these two agencies. As a result of this imperfect means of supplying information, different points of view are engendered and contrary actions defined.

The medical profession has too long permitted the laws dealing with health to be interpreted entirely by a public health executive. This should be changed and we, the physicians of the country, must see that it is done. I would recommend that the Executive Committee of this section present to the House of Delegates a resolution seeing to the proper supervision of all legislation introduced into state or federal law-enacting bodies.

It is the duty of the physician to treat sick people and to keep people well. It is the duty of the health official to aid the profession in the control of all those suffering with some disease which might be communicated to another—two separate and distinct duties, both, however, looking to the same end: that is, a healthy people.

* Chairman's address, read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

UNRECOGNIZED INFECTIONS IN PRODUCTION OF CARRIERS OF PATHOGENIC ORGANISMS *

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There are no problems of greater interest and importance to the student and practitioner of preventive medicine that those concerning the so-called "carriers" of the specific parasites causing contagious and infectious diseases. It has been only within the last decade that the enormous importance in the transmission of this class of diseases by apparently healthy individuals who are carrying the causative organisms, be they bacterial or protozoal in nature, has been fully recognized, and the major portion of what has been accomplished in

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* Read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

the elucidation of this subject we owe to the laboratory. The fact that it is not the patient suffering from certain infections who is the greatest danger to the community, as regards the spread of the infection, but those who have been in contact with him and who present no appreciable symptoms of disease, although generally admitted by well informed physicians today, would have been laughed into temporary oblivion twenty years ago; and even today it is doubtful whether the great mass of the medical profession realizes the vital part "contact carriers" play in the transmission of some of the most important contagious and infectious diseases.

Carriers of the various bacterial and protozoan parasites causing disease are usually divided into two great classes: "convalescent carriers," or those who have recovered from an attack of the disease but who continue to carry the causative parasite, and "contact carriers," or those who have never suffered from a recognized attack but who carry the specific parasite, derived through more or less intimate contact with those suffering from the disease. As there is no reason why a contact carrier should not transmit the parasite to other individuals who do not afterward develop the disease, but thus, in turn, become carriers of the infection, it is necessary to include a third class of carriers: those who have never had the disease or been in contact with patients suffering from the disease, but who have become infected through contact with contact carriers of the parasite.

It is now a generally accepted belief that contact carriers are the most important agents in the transmission of many infections. Being more numerous than are convalescent carriers, and moving freely about in the community, they are the great causes of the endemic presence of these infections in the community, and the origin of most of the epidemics which occur from time to time when conditions are favorable. Not only are these contact carriers the most important source of endemic and epidemic infections; they are also the origin of other carriers, and this fact, very often overlooked or forgotten, is probably of the greatest importance in the etiology of epidemics.

While it is generally believed that contact carriers have never suffered from the diseases due to the parasites they are carrying, it is the purpose of this contribution to call attention to the fact that a very considerable proportion of them have presented, at one time or another, symptoms which were undoubtedly due to the parasite they carry. While there is no question that many individuals who have never shown any appreciable symptoms of infection become carriers of pathogenic organisms, it is equally true that many so-called contact carriers have, in reality, suffered from symptoms of infection, and are, in effect, convalescent carriers rather than contact carriers of the specific parasite. This class of carriers originates from unrecognized cases of contagious or infectious disease, cases in which the symptoms of the infection were so slight or atypical as to mislead the physician, or cases that have caused the patient so little inconvenience that medical advice was not sought. A considerable proportion of contact carriers belong to this category, and the recognition of this fact is of value to the physician, as it should lead him to a more careful consideration of apparently trivial symptoms and to the greater utilization of laboratory aids in the diagnosis of their cause.

Many authorities on preventive medicine have called attention to the importance of "missed" or unrecognized cases of contagious and infectious disease, and have recognized that they present one of the most difficult problems in the control of infections. Because of the mild character of the symptoms the patient generally pursues his vocation, and thus comes in contact with many susceptible individuals who may develop the disease. However, his pernicious activity does not stop here, for he often becomes a carrier of the infection and may transmit it for long periods of time, giving rise, through contact, to other "carriers." If, as the result of laboratory examinations, the carrier condition is discovered, he is generally classed as a "contact carrier," although in reality he is a convalescent carrier of the infection.

The importance of diagnosing these mild infections is obvious if we would prevent the transmission of infection to others; and because I believe that most of them would be recognized if physicians were on the lookout for them, I have thought that it might be of interest and value to consider briefly a few of the more important infectious diseases from this standpoint. For this purpose I have selected diphtheria, typhoid fever, malaria and amebiasis, both because these diseases occur commonly throughout the United States and because they illustrate very well the relation of unrecognized infections, both bacterial and protozoal, to the production of "carriers."

DIPHTHERIA

The fact that apparently healthy individuals may harbor virulent diphtheria bacilli in their throats was recognized by Loeffler,[1] as early as 1884, for in his original description of this organism he stated that one of the most virulent strains of the bacillus with which he worked was isolated from the throat of a perfectly healthy individual. In 1890, Escherich[2] announced that the diphtheria bacillus was frequently found in the throats of persons convalescent from the disease, after the disappearance of the membrane, and this observation originated many investigations as to how long the bacilli persisted, investigations that have proved beyond all doubt that the convalescent carrier of the diphtheria bacillus is a common and most important source of the disease. The results of these studies have been ably summarized by Ledingham and Arkwright,[3] Simon,[4] Weaver[5] and others, but space forbids their consideration at this time, though it may be stated that the bacillus may persist in the throats of convalescents for periods of several weeks or months. The recent studies of Weaver[5] show that approximately two thirds of the convalescents become negative within two weeks after the disappearance of the membrane, about 70 per cent. within three weeks after the onset of the disease, and nearly 84 per cent. within four weeks of the onset. Simon[4] states that the results of the best investigators show that 85 per cent. of diphtheria convalescents are negative for the bacillus by the end of the fifth week, and 98 per cent. by the end of the ninth week. However, the bacilli may per-

1. Loeffler: Arb. a. d. k. Gsndhtsamte **2**: 439, 1884.
2. Escherich: Centralbl. f. Bakteriol. **7**: 472, 1890.
3. Ledingham and Arkwright: The Carrier Problem in Infectious Diseases, New York, 1912, p. 163.
4. Simon: Human Infection Carriers, Philadelphia, 1919, p. 38.
5. Weaver, G. H.: Diphtheria Carriers, J. A. M. A. **76**: 331 (March 26) 1921.

sist for much longer periods of time, and Prip [6] records a case in which they were present for four years.

While the data regarding convalescent carriers of diphtheria were being collected and studied, it became evident that in the transmission of the disease the contact carrier was of far greater importance than the former, as the observations demonstrated that a considerable proportion of apparently healthy individuals, in more or less close contact with diphtheria patients, became infected and carried the bacilli in their throats, although appreciable symptoms of the infection were lacking.

As regards the frequency of these contact carriers, it may be stated that the percentage varies in different localities and under different conditions. Much of the data has been critically reviewed by Graham-Smith,[7] and he concludes that when there was very close contact, as in families in which no precautions were taken against infection, the proportion of carriers among healthy individuals might run as high as 36 per cent.; in hospital wards and institutions as high as 14 per cent., and among pupils of infected schools as high as 8.7 per cent. Weaver,[8] as the result of biweekly cultures extending over two years in a hospital for contagious diseases, found that 15.2 per cent. of the nurses became contact carriers of diphtheria. Cultures of 800 apparently healthy schoolchildren were taken in Baltimore by Gelion, Moss and Guthrie.[9] Of these, 10.6 per cent. were found positive for the bacillus, while only 3.6 per cent. of the cultures taken in a study of 2,507 apparently healthy individuals of varying age and social position in the same city were found positive.

The observations noted, and many others of like character, prove that a considerable proportion of apparently healthy individuals become contact carriers of the diphtheria bacillus; but it is important to remember that they do not all carry virulent bacilli, and hence only a certain proportion are a serious menace as regards the transmission of the disease.

The question arises as to how many of these so-called contact carriers are really convalescent carriers, having suffered from an attack of diphtheria so mild as to escape recognition. It is well known to every physician that many mild cases of this disease occur in which the symptoms are so slight as to mislead the physician or be neglected by the patient, and it is reasonable to believe that many of these cases become carriers of the infection. While the physician is not consulted by a certain proportion of patients suffering from these mild diphtheritic infections, many do consult a physician, complaining of general malaise and sore throat; but unless a false membrane is present it is seldom that the physician suspects diphtheria and requests a bacteriologic examination. In my own experience, covering the bacteriologic examination of hundreds of soldiers suffering from sore throat without the presence of a false membrane, a considerable proportion of cultures taken proved positive for the diphtheria bacillus, and many of the men examined became carriers. Had it not been the routine practice to make a bacteriologic examination of the throats of all men complaining of throat symptoms accompanied by signs of inflammation, their cases would have remained unrecognized, and if the carrier condition had been discovered later, they would have been regarded as contact carriers, whereas they were really convalescent carriers of the bacillus.

A careful inquiry into the history of many contact carriers of the diphtheria bacillus will result in the information that soreness and inflammation of the throat occurred at some previous time, but the symptoms were so slight that the physician consulted did not suspect diphtheria and no bacteriologic examination was made. Weaver [5] has recently confirmed the importance of these unrecognized infections in producing carriers, and he states that of fifty-two patients entering the Durand Hospital as carriers no less than twelve gave a history of recent sore throat. The bacteriologic examination of the throat has been much neglected in these mild infections because of the belief, still too prevalent, that diphtheria is always accompanied by the formation of a false membrane, although every physician of wide experience frequently observes cases of the disease in which the membrane is absent, and it is more than probable that such cases form a considerable proportion of all diphtheritic infections.

It is obvious that a bacteriologic examination of the throat of every patient complaining of soreness in that region accompanied by signs of inflammation would result in the discovery of these mild infections and their isolation and treatment, thus greatly reducing the incidence of the disease and preventing the carrier state. While I have no doubt that perfectly healthy individuals may become carriers of the bacillus, I am of the firm opinion that the great majority of the "carriers" of virulent diphtheria bacilli have suffered from some symptoms, however mild, of the infection, and are actually convalescent carriers of the organisms.

Other factors of great importance in the production of "carriers" of diphtheria are unrecognized diseased conditions of the throat and nasal passages caused by other pathogenic organisms; for it is now well recognized that secondary infections resulting in inflammatory conditions of the nose and throat favor the production of carriers of the diphtheria bacillus. Hypertrophied and diseased tonsils, adenoids, ulcerative and chronically inflamed mucous membranes form ideal breeding places for the diphtheria bacillus, and in almost every instance a careful examination of a carrier of this parasite will result in the demonstration of some pathologic condition of the mucous membrane of the respiratory tract.

Many observers have demonstrated the diphtheria bacillus in the crypts of the tonsils in carriers of diphtheria, and Nichols, at the Army Medical School, has demonstrated them in the walls of the tonsillar crypts, in a tonsil which had been removed from a carrier. That the tonsils furnish a focus of infection in these carriers is proved by the fact that their removal cures the carrier condition, as shown by the results obtained by Keefer, Friedberg and Aronson,[10] Hartley and Martin,[11] Weaver [12] and many others. The presence of adenoids is another often unrecognized condition favoring the production of diphtheria carriers, and their removal is almost invariably followed by the disappearance of the bacilli, while in many diphtheria carriers

6. Prip: Ztschr. f. Hyg. u. Infectionskrankh. **36**: 283, 1901.
7. Graham-Smith: Bacteriology of Diphtheria, London, 1908, p. 187.
8. Weaver: J. Infect. Dis. **20**: 125, 1917.
9. Gelion, Moss and Guthrie: Bull. Johns Hopkins Hosp. **31**: 381, 1920.
10. Keefer, F. R.; Friedberg, S. A., and Aronson, J. D.: A Study of Diphtheria Carriers in a Military Camp. J. A. M. A. **71**: 1206 (Oct. 12) 1918.
11. Hartley and Martin: Proc. Roy. Soc. Med. (Sect. Epidemiology and State Med.) **13**: 277 (July) 1920.
12. Weaver, G. H.: Diphtheria Carriers, J. A. M. A. **76**: 831 (March 26) 1921.

there exists a streptococcous infection of the throat which has undoubtedly helped in the production of the carrier state.

From this brief review of the subject, it is evident that unrecognized diphtheria, as well as unrecognized infections with other pathogenic organisms, leads to the production of diphtheria carriers, and that greater care in the diagnosis of the apparently trivial inflammations of the throat and nose should be employed if we desire to reduce the number of carriers and, thus, the incidence of the disease. As the true etiologic nature of these mild infections can be determined only by a bacteriologic examination, this measure should be insisted on in every case in which it can be employed, and fortunately, with our municipal and other laboratories, it is now possible to have cultures examined in the vast majority of patients presenting symptoms suggestive of diphtheritic infection of the throat or nose.

TYPHOID FEVER

Patients recovering from typhoid fever may harbor virulent typhoid bacilli for weeks, months or even years, and these convalescent carriers are of the greatest importance in the transmission of this infection. Robert Koch,[13] in an address delivered in November, 1902, was the first to call attention to this method of transmission of the disease, stating that patients who had recovered from typhoid sometimes excreted the bacillus in the feces for long periods of time, thus becoming carriers of the infection. However, prior to Koch's discovery, Horton Smith,[14] in his Goulstonian Lectures of 1900, had mentioned the importance of the most dangerous type of typhoid carrier, the so-called "urinary carrier," in whom the bacilli were excreted in the urine from some focus of infection in the urinary tract.

It would be but a repetition of well known facts to discuss here the data that have proved that a certain proportion of convalescents from typhoid fever become chronic carriers of the typhoid bacillus, this proportion varying somewhat in different localities and among different races. Miller [15] states that about 6 per cent. of typhoid patients become "intestinal carriers," and of these about two thirds become chronic carriers of the bacillus, one third of the cases clearing up within three months after convalescence begins.

In addition to the convalescent carrier of typhoid, we now know that approximately 0.5 to 1 per cent. of apparently healthy individuals harbor the bacillus and are classed as contact carriers of the infection. Gay [16] has collected the data concerning the examination of 32,000 persons not suffering from the disease, of whom 194, or 0.6 per cent., were found to present typhoid bacilli in their feces, while Klinger [17] found that about 2 per cent. of 431 healthy individuals he examined showed the bacilli in the feces.

Perhaps there is no other infectious fever in which so many atypical and mild attacks occur as in typhoid, and it is common knowledge, or should be, that many cases of this disease occur in which the symptoms are so slight as to be unrecognized by the physician or even to cause the sufferer to seek medical advice. It is my belief that the vast majority of the so-called contact carriers of the typhoid bacillus are in reality convalescent carriers; for, if a history of symptoms that might be referable to this disease is carefully sought, it will be found that most healthy carriers have at some time presented such symptoms. It is impossible to believe otherwise when one considers the small percentage of such carriers as compared with the large number of mild and atypical cases of typhoid that are observed by physicians, to say nothing of the many that never come under medical observation.

My own experience at Chickamauga Park, in 1898, during the greatest epidemic of typhoid that this country has ever witnessed, early convinced me that many individuals suffer from this disease who do not, at any time during the progress of the infection, consider themselves sick enough to give up their vocation, or, in military service in times of stress, to go on sick-report. Of the physicians and nurses attending the hundreds of cases at the Sternberg General Hospital, at that place, I believe from personal observation that fully one half of those who did not develop well marked typhoid suffered from mild and atypical attacks, during which they continued to perform their duties. These attacks were marked by more or less malaise, diarrhea, slight fever, headache and muscular soreness and pain, and extended over periods varying from three or four days to a week or more. As this was at a period prior to the discovery of carriers of this disease, bacteriologic examinations of the stools were not made in these cases; but most of them developed strong Widal reactions, thus proving that they had suffered from typhoid infection. A certain proportion of these individuals must have become convalescent carriers of the bacillus, but practically all of them would have denied that they had ever had typhoid fever.

How mild the symptoms may be in these atypical cases is well illustrated in the study of an epidemic of typhoid among French soldiers of the Seventy-first Infantry Regiment at the Saint Brieuc garrison published by Billet [18] and his co-workers. A careful bacteriologic examination was made of all suspects, and many gave either positive Widal reactions or typhoid bacilli were recovered from the feces; and in some of these cases the symptoms were so mild that no attention would have been paid to them under ordinary conditions. In fifty-seven such cases, only fourteen patients had a fever, and this lasted only from three to five days; seven had a slight fever lasting two days; while in thirty-four the temperature remained normal. In eight cases the only symptom was constipation, and in fifteen headache, loss of appetitie, a furred tongue, and a feeling of malaise were the prominent symptoms. Of other symptoms noted, diarrhea, stiff neck, anginal pains and muscular rheumatism may be mentioned. Of these patients, 20.3 per cent. were discharging typhoid bacilli in the stools; while in seven of the cases blood cultures were positive for the typhoid bacillus. When it is remembered that under ordinary conditions none of these cases would have been recognized as typhoid fever, it is evident that such unrecognized infections must be very common and a prolific cause of carriers of the disease. Indeed, while such an opinion may sound very radical, I am convinced, from my own experience and that of others recorded in the literature of the subject, that an individual rarely becomes a "carrier"

13. Koch: Sitzungsb. Kaiser Wilhelms Akad., Nov. 28, 1902.
14. Smith, Horton: Brit. M. J. 1: 827, 1900.
15. Miller: Typhoid Fever, Oxford Medicine, New York, Oxford University Press 4: 674, 1921.
16. Gay, F. P.: Typhoid Fever Considered as a Problem of Scientific Medicine, New York, the Macmillan Company, 1918, p. 124.
17. Klinger: Arb. a. d. k. Gesdhtsamte 24: 90, 1906.
18. Billet: Arch. de méd. et pharm. mil. 55: 259, 1910.

of the typhoid bacillus without suffering from symptoms of the infection, and that the vast majority of carriers are convalescent carriers rather than contact carriers.

In view of the relation of these mild and atypical typhoid infections in the production of carriers, the physician should be constantly on the lookout for them, especially when the disease is epidemic in a locality. Patients complaining of malaise, loss of appetite, headache, muscular soreness and attacks of diarrhea, and showing a furred tongue and slight rises in temperature, should have blood cultures, and bacteriologic examinations of the feces and urine, as well as a Widal test. Only in this way can these mild typhoid infections be recognized and the proper steps taken to prevent the transmission of the disease to others.

THE MALARIAL FEVERS

While unrecognized infections are of great importance in the production of carriers of the bacterial parasites causing disease, they are of even greater importance in the production of carriers of certain protozoa that cause disease in man. Perhaps the best illustration of this is in the instance of the malarial fevers. The plasmodia causing these fevers develop in the blood of man certain forms, called gametes, which transmit the infection to the mosquito, and which later develop into forms infecting man. It is well known that the gametes do not usually appear in the blood of man until from ten to fourteen days have elapsed after the appearance of symptoms, and until they appear man is not infective to the mosquito. Individuals whose blood contains the gametes are carriers of the malarial plasmodia, but only about 50 per cent. of individuals infected with the plasmodia develop gametes and thus become carriers.

It is well known that in every malarial locality a certain proportion of apparently healthy individuals harbor the plasmodia, and that approximately 50 per cent. of these have gametes in their blood and are "carriers" of the infection. The proportion of latent infection varies in different localities and for different ages, but the accompanying table, compiled from the observations of numerous investigators, gives a good general idea of the amount of latent malarial infection in the average malarial locality in the tropics and subtropics.

LATENT MALARIAL INFECTION AT DIFFERENT AGES

Age	No. of Cases	Positive	Per Cent.
From 1 to 5 years	6,288	1,407	22.3
From 5 to 10 years	5,305	1,279	24.1
From 10 to 15 years	3,480	966	27.7
Adults	15,440	3,164	20.4
Totals	30,513	6,816	22.3

From the figures given in the table, it is evident that over 20 per cent. of apparently healthy natives in most malarial regions harbor the plasmodia, and it is roughly estimated that of this percentage about 50 per cent. are carriers of the infection by reason of showing gametes in their blood. In very badly infected districts as high as from 60 to 70 per cent. of apparently healthy children have been found infected, and at Camp Stotsenburg, in the Philippines, I [19] found over 70 per cent. of the children and over 60 per cent. of apparently healthy adult natives infected, one or more of the species of malaria plasmodia being found in their blood. Of this number over 50 per cent. showed gametes and were carriers of the infection. In localities less severely infected the number of latent infections and carriers may be much smaller. Thus Bass,[20] in Sunflower County, Miss., found that 18.3 per cent. of 2,176 individuals who claimed they had not suffered from malaria for one year showed plasmodia in their blood, while in Bolivar County, Miss., of 2,993 individuals who gave negative histories of malaria, 15.9 per cent showed plasmodia in their blood. Bass [21] aptly says: "This does not mean that none of these had attacks or clinical manifestations of malaria that could have been recognized by proper examination by a competent physician, but it means that they were not recognized by themselves or by physicians."

It is impossible to state how many of these carriers of malaria have actually had mild attacks of the disease, owing to the almost absolute lack of accurate data on the subject; but it is well known to all students of malarial infection that the symptoms produced by the plasmodia are often so atypical as to simulate other infections, thus frequently misleading the physician as regards diagnosis. Many carriers of malaria will state that they have never had the disease because they believe that malaria means a paroxysm of chill, fever and sweating; but if they are questioned as to the occurrence of atypical malarial symptoms, they will generally admit that they have suffered from them.

From personal observation, I believe that the vast majority of carriers of malaria have had symptoms of the infection that could have been recognized by a trained physician, and I am sure that the infected individual often consults the physician for the relief of symptoms actually due to the plasmodia but which he believes to be due to some other cause. I have often found a slightly elevated temperature in carriers of malaria who stated that they were perfectly well, and in almost every instance a careful examination will reveal other evidences of malarial infection, as slight anemia, a feeling of weakness and malaise, loss of appetite, digestive disturbances, and perhaps an enlarged spleen. Inquiry into the history of these "carriers" will generally result in the information that there have been periods of ill health, characterized by chilliness, headache, disinclination to exertion, loss of appetite and other symptoms, which, while not those of the typical malarial paroxysm, would have been regarded as suspicious by the trained physician, and would have led to an examination of the blood. The truth of these statements is corroborated by the physical appearance of the vast majority of carriers of the malarial plasmodia. Almost without exception they appear, and are, below par physically, as shown by the sallow complexion, lack-luster eye and pale mucous membranes, and the reduced vitality, evidenced by lack of ambition and inability to comfortably perform the usual duties of life.

Owing to the peculiar life history of the malaria plasmodia the condition of every carrier of the infection must have resulted from an unrecognized clinical attack, as the gametes, which mark the infective stage of the plasmodia, do not develop until the plasmodia have become numerous enough to produce symptoms and usually are not observed in the blood until from ten to fourteen days have elapsed after the occurrence

19. Craig: Philippine J. Sc. (Sec. B) 1: 523, 1906.

20. Bass: South. M. J. 12: 190 (April) 1919.

21. Bass: South. M. J. 12: 460 (Aug.) 1919.

of appreciable symptoms, so far as our clinical observation extends. The presence of gametes, then, is a proof that there must have been some clinical symptoms of the infection, the true nature of which was unrecognized by either patient or physician because of their mild or atypical character. Had malaria been suspected at this time a blood examination would have shown the presence of the plasmodia, and proper treatment would have prevented the development of gametes, and thus prevented the carrier state and the consequent transmission of the disease. Therefore, it is evident that in this very important group of infections, unrecognized infections are practically alone responsible for the production of carriers among individuals who are apparently free from infection and who consider that they have never suffered from malaria.

In malarial regions an examination of the blood of every patient should be a routine practice; for malaria, like syphilis, is a protean disease, capable of causing symptoms varying in severity from the most trivial to those endangering life. Unrecognized malarial infection leads to the production of carriers of malaria; and, as most of the mild infections are impossible of recognition except through a blood examination, the latter procedure should be as much a matter of routine in a malarial region as is the use of the clinical thermometer. If such examinations were made, the number of carriers would be greatly reduced, as proper treatment with quinin will prevent their development, or if the carrier state is already present, will result in its disappearance.

AMEBIASIS

Infection with *Endameba histolytica*, the cause of amebic dysentery, is widespread in the tropics and the subtropics and is fast becoming a serious problem in the United States, owing to the enormous number of carriers of this parasite among the soldiers returning from overseas service since the conclusion of the World War. It should be understood that the term "amebic dysentery" is a most unfortunate one if it be used as synonymous with "amebiasis"; for while dysenteric symptoms are the most serious evidences of infection with *Endameba histolytica*, the vast majority of infections with this parasite are not accompanied by these symptoms but with much milder symptoms, such as indigestion, tenderness of the abdomen, slight diarrhea, and a general lack of vitality. Where one case of amebic dysentery occurs, there occur many cases of amebic diarrhea, characterized by short periods of mild diarrhea alternating with periods of slight constipation, symptoms which are not likely to be considered as due to amebas owing to the nonrecognition, by the mass of the medical profession, of the widespread extent of this infection in the United States.

Walker and Sellards,[22] in 1913, were the first to call attention to the importance of "carriers" of amebiasis, proving that the cysts of the parasite are the infective agents and that these cysts may occur in apparently healthy individuals who give no history of ever having suffered from dysentery. In 1916, I [23] investigated a small epidemic of amebic dysentery occurring among our soldiers on the Mexican border, at El Paso, and found that, of fifty-five apparently healthy men in one of the truck companies, five, or 9 per cent., were carriers of the dysentery ameba. Wenyon and O'Connor [24] examined the stools of 1,979 healthy British soldiers in Egypt and found that 106 were positive for the cysts of *Endameba histolytica*, the men, therefore, being carriers of the parasite; while of 534 healthy native soldiers, 13.5 per cent. were found to be carriers. Mathews and Smith [25] made 23,924 examinations of 4,968 convalescent dysenteric patients from the Western Front, most of them recovering from bacillary dysentery (?) and found that over 12 per cent. of them were carriers of the dysentery ameba. They estimate that at least 25 per cent. would have been found to be "carriers" had a greater number of examinations been made. In this country, Kofoid [26] examined 2,300 soldiers returning from overseas service and 576 home service men and found that 12.8 per cent. of the overseas men and 4.3 per cent. of the home service men were carriers of *Endameba histolytica*. He has recently published the results of an investigation of ex-service men attending the University of California,[26] examining ninety-one men who had been overseas, thirty-four who had been on home service, and twenty-nine as yet undetermined. Sixty-seven per cent. of the overseas men, 26.5 per cent. of the home service men, and 41 per cent. of the undetermined were found to be carriers of this parasite. Kofoid calls attention to the very important fact that if this percentage holds good for the 3,000,000 soldiers we had overseas, there must have returned to this country at least 500,000 men who were carriers of the cause of amebic dysentery and potential agents for scattering the infection throughout the United States.

In view of these observations it is needless to urge the importance of recognizing symptoms of infection with this parasite, and the first fact to be appreciated is that most of these carriers have had symptoms due to their infection. A well defined history of dysentery can be obtained in a few of them, but usually a history of dysentery is denied. However, if questioned regarding the occurrence of slight attacks of diarrhea, generally lasting only a few hours, the vast majority of them will admit the occurrence of this symptom, stating that these attacks frequently occur at night and subside after the passage of one or more profuse stools accompanied by more or less abdominal pain.

These carriers also suffer from discomfort after eating, intestinal indigestion and a feeling of malaise, and periods of loss of weight, especially in hot weather; and though they frequently consult physicians for the relief of these symptoms it is but rarely that amebic infection is suspected and a microscopic examination of the feces requested. This unfortunate condition of affairs exists because the medical profession of this country has not yet realized that while amebic dysentery is a comparatively rare condition, amebic diarrhea is very common and is becoming more so; and that, while dysenteric symptoms are the most severe clinical manifestations of infection with *Endameba histolytica*, they are very rare manifestations when compared with the mild forms of diarrhea caused by this parasite, in which the true etiologic agent is not even suspected.

The recent observations on this subject have shown that the carrier of amebiasis is the only source of the infection, as the vegetative stages of the parasite which are present when acute symptoms occur are not infective, and that unrecognized infections are the chief

22. Walker and Sellards: Philippine J. Sc. (Sec. B) **8**: 253, 1913.
23. Craig, C. F.: Mil. Surgeon **21**: 286-423, 1917.
24. Wenyon and O'Connor: J. Roy. Army Med. Corps **28**: 12, 1917.
25. Mathews and Smith: Ann. Trop. M. & Parasitol. **13**: 83, 1919.
26. Kofoid: Am. J. Trop. Dis. (etc.) **1**: 41, 1921.

cause of the production of these carriers. These facts are of the greatest importance to the practitioner of preventive medicine; for while we have no specific treatment which will prevent the development of carriers or cure them in 100 per cent. of the cases, we have good reason to believe that the prompt recognition and proper treatment of this infection will prevent a large proportion of patients from becoming carriers, and will cure a considerable proportion of those in whom the carrier state has developed.

CONCLUSION

The diseases that have been considered are by no means the only ones in which unrecognized infection leads to the production of carriers. A volume could be written on this very important problem; but if this brief and very inadequate discussion of the subject will result in greater attention being paid by physicians to the apparently trivial symptoms often complained of by their patients, and to the greater utilization of the aids to diagnosis offered by the laboratory, I shall feel that it has accomplished a useful purpose. If it will lead to a more frequent employment of blood cultures and microscopic examinations of the blood in cases of undetermined fevers; of throat cultures in the apparently mild inflammations of the throat and nose; and of microscopic examination of the feces in patients suffering from diarrhea and other intestinal symptoms, I feel sure that it will have, in some measure, aided in the prevention of infections that are transmitted by "carriers."

Surgeon-General's Office.

UROLOGY AND THE GENERAL PRACTITIONER *

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The word urology is derived from two Greek words, οὖρον urine, and λόγος discourse. Urology in this limited sense is as old as medicine. Urology, as it now is, not only includes a study of the urine but also all pathologic conditions found in the urinary and genital organs. The urologists of centuries ago made ocular studies of the urine and in this way thought they were able to tell what was wrong with the patient. By looking at the urine in receptacles shaped to resemble a distended bladder these gifted men could determine not only kidney and bladder lesions, but more remote disturbances, such as pregnancy, hysteria and love sickness.

In the papyrus Ebers, medical manuscripts of the Egyptians, about 1550 B. C., are found several references to medical treatment of urinary disorders, but no mention is made of surgery of the urinary organs.

As early as 600 B. C. the Hindus performed perineal sections for vesical calculi. Many of the natives of India, then as now, were sufferers from urinary calculi. The old adage "Necessity is the mother of invention" aptly applies here, only in this case it was a matter of intervention. Strange to relate, the technic of perineal lithotomy of today does not differ much from that of our remote forefathers. The Hindus also seemed to have suffered from urethral stricture, cause not mentioned, which they dilated every three to five days with instruments of increasing size: splendid common sense way of treating strictures today.

Hippocrates, 400 years B. C., in his writings, made many references to urologic subjects. He described the development of a bladder stone from a small nucleus. He recommended nephrotomy for abscess of the kidney. As far as I have been able to learn, Hippocrates was the first to admit that certain surgeons could do urologic surgery better than others. In the famous hippocratic oath is found a clause in which the person taking the oath promises to refer all lithotomy cases to "men who are practitioners of this work."

Catheterization for retention of urine, particularly in men of advanced years (prostatic hypertrophy) was described by Celsus about 20 A. D.

During the medieval period, practically no medical or surgical progress was made. Surgery was relegated to the barbers, and medicine to the monks. During this time and later, there were numerous lithotomists in Italy traveling from place to place.

During the fourteenth century there was founded in Paris the College of Saint Comé by Jean Pitard, and surgery took on new life. Movable kidneys were described. External urethrotomies were performed for stricture and impacted calculi.

Modern urology, urology as it is today, did not begin its real development until well into the nineteenth century. Among the factors that made progress possible were the development of the microscope; the discovery of anesthesia, both general and local; the discovery and classification of bacteria, such as the gonococcus, tubercle bacillus, streptococcus, staphylococcus and colon bacillus; urinalysis, chemical and microscopic; artificial illumination of the bladder—cystoscopy, and roentgenography.

Urologic diagnosis rests on a tripod of mechanical aids: the microscope, the cystoscope and the roentgen rays. With the proper application of these agents, used singly in pairs or all three, practically all pathologic conditions found in the urinary tract can be located, recognized and classified.

Bacterial and other pathologic content of the urine can be determined by careful use of the microscope.

Anything abnormal in the bladder can be seen through the cystoscope, as, for instance, inflamed mucosa, edema, ulcers, trabeculations, diverticular openings, tumors, cysts, calculi, foreign bodies and prostatic obstructions. With the catheterizing cystoscope, urine is collected from each kidney for chemical and microscopic study, renal function determined, and pelves injected for pyelography.

The roentgenogram is particularly helpful in cases of suspected urinary calculus; yet the roentgen-ray findings are not 100 per cent. correct. Further than this, the roentgen ray gives us but little information until assisted by other agents. Suspected diverticulum of the bladder is demonstrated by the roentgen ray when the bladder is filled with thorium, sodium bromid or some chemical in solution that produces a shadow on the roentgen-ray plate or film. In this manner bladder tumors can be shown by roentgenogram when there is too much bleeding to make a satisfactory cystoscopic examination. Dilated ureters are frequently seen on the roentgenogram when a cystogram is made.

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

By the combined use of the cystoscope and roentgen ray, hydronephrosis, renal neoplasm, displaced kidneys, kinks and angulations of ureters, renal and ureteral calculi are very definitely diagnosed in a vast majority of cases. Illustrating this point, a patient having hematuria, with roentgen-ray examination negative, cystoscopic examination showing all the blood in the right kidney urine, and still no diagnosis, the pelvis of that kidney was filled with sodium bromid solution, a roentgenogram was made, and the contour of the pelvis was found to be abnormal; several of the calices were obliterated. The diagnosis, renal neoplasm, was verified surgically. This diagnosis could not have been made with either roentgen ray or cystoscope alone, but combined, the findings were quite accurate and correct.

Among the subjective symptoms that suggest a urologic examination are pain, dysuria and pollakiuria. The pain may be abdominal, lumbar, inguinal, genital, perineal or rectal. This seems to include considerable anatomic territory; but it should be borne in mind that a hasty diagnosis based largely on localized pain may lead to a gallbladder operation when the real cause of the pain is in the kidney, a calculus, a tumor or an abscess. A hasty diagnosis may lead to an appendectomy or an oophorectomy when the cause of the pain is due to a calculus in the ureter. A hasty diagnosis may lead to the removal of a few small hemorrhoids when the cause of the pain is in the seminal vesicles or prostate. A hasty diagnosis may lead to a gastroenterostomy when the seat of the trouble is in the spinal cord.

Dysuria—painful urination—if at all persistent demands a careful search for the cause. This cause may be found in the urethra, prostate, bladder, kidneys or in the pelvis extravesically. Dysuria is very often associated with pollakiuria—frequent urination—yet many patients who are troubled with frequent urination do not suffer pain. It would be somewhat disquieting, after having had a patient's ovaries and tubes removed for frequent, painful urination, to learn that all of her urinary troubles were due to the fact that she was a morphin habitué or, what would chagrin one even more, to discover that she had pinworms.

The objective symptoms that certainly justify urologic investigation are pyuria and hematuria. Pus and blood are not often found in an authentic specimen of urine unless there is some pathologic condition present in the urogenital tract. Occasionally the blood in the urine may be due to some abnormal condition outside the urogenital system. A large pancreatic cyst may cause left renal hemorrhage by pressure, and in the same way a pelvic tumor may cause hematuria. It must not be forgotten that some of the infectious diseases cause hematuria; malaria particularly may not only produce renal hematuria but the bleeding may be confined to one kidney. Certain drugs may also cause hematuria.

While blood in the urine may be the effect of some extra-urogenital disturbance, pus in the urine is more likely to be there because of some trouble within the urogenital tract. In the preliminary examination for the source of pus in urine, the urine should be voided in two receptacles. If the second portion is practically free from pus, it is reasonable to suppose that the trouble is not in the kidneys, ureters or bladder. If both portions of urine contain about the same amount of pus, then the bladder, ureters and kidneys must be examined roentgenographically and cystoscopically.

With any or all of these symptoms present, how far can the general practitioner proceed with his examination and treatment? The first thing that he can do is to examine his patient. This is a good habit to acquire, no matter what symptoms the patient presents, whether they be cardiac, respiratory, gastric, mental or urologic. We should keep practicing the things we learned when we were taught physical diagnosis. The physician who examines his patient certainly is in a better position to diagnose and treat the case than the physician who accepts the patient's diagnosis and sometimes his suggestions for treatment. After having made a careful general examination, he should then direct his attention to the urinary tract. Every general practitioner should be prepared to make a careful microscopic examination of sedimented urine, including the ordinary bacteriologic stains.

When this is done, not once but many times for the same patient, much valuable information is obtained. Casts, epithelial cells, leukocytes, both mononuclear and polymorphonuclear, red cells and crystals are found in this manner. Simple bacterial stains will reveal the presence of ordinary infections found in the urinary tract. A careful microscopic study of the urine does not locate the pathologic lesion, but it is refreshing to the urologist when the family physician who brings a patient for examination has with him a report of such a careful study already completed. Such a family physician will not treat a patient complaining of frequent urination for several years, not even for several months, before he wants to know something more definite. He will not administer belladonna, alkalis and hexamethylenamin empirically for years to a patient who has a vesical calculus as large as a goose egg before he passes a metal sound into the bladder or has some one do it for him. Nor will he order sweet spirit of niter and epinephrin solution for hematuria over a long period of time, before asking for special examination. Some hematurias are intermittent in spite of internal medication, not because of it.

Every graduate of medicine should know how to pass a sound without doing damage to the urethra. If any urethral instrument cannot be coaxed into the bladder by means of gentle manipulation, it certainly cannot be safely forced through. There is probably no other part of the human anatomy requiring treatment that demands more gentleness and patience than the male urethra. If this fact is not observed, irreparable damage can be done in a very short time. When there is an indication for the passage of urethral instruments and the physician cannot easily introduce what he has at hand, he owes it to his patient to seek the aid of some one who possesses the equipment and is sufficiently skilful to give the patient relief and proper treatment without permanent or even temporary injury.

When the cause of urinary disturbance is being sought, one should not forget the central nervous system. Tabes is not infrequent. Syphilis is not to be denied even if the patient denies it. In case of doubt, a Wassermann test should be made, and if negative an examination of the spinal fluid may be very helpful.

No case of urogenital disorder should be treated symptomatically or empirically. For every symptom

there is a cause, and it is only justice to the patient to have that cause located as early as possible. If the cause cannot readily be determined after ordinary examinations in a few days, the patient is entitled to as careful and thorough urologic examination as is available.

19 West Seventh Street.

ABSTRACT OF DISCUSSION

DR. W. C. QUINBY, Boston: It is my habit to teach that the general practitioner, and especially the student, shall make his examination in what I term a "crescendo" fashion, doing that thing which is most obvious and easiest first, which in all diseases is a carefully made general physical examination. The next thing should be a careful microscopic examination of the urine. Third in degree of importance, I feel that every general practitioner should be able to make the ordinary total phenolsulphonephthalein test, the injection of 0.6 mg. and collection of the urine by allowing the patient to pass it two hours and ten minutes afterward, and then be able to read that result against a solution of known intensity. In this way he can get an excellent idea of the total functional ability of the kidneys, so far as the excretion of the dye is concerned. The fourth step is to make what the roentgenologist calls the "K U B" plates—examination of the kidneys, ureters and bladder by roentgen ray. Such examination will give much information. Then, having done these various things, if still more elaborate examination is necessary for a diagnosis, some one with a definite urologic training must enter the field. In a large number of cases it will not be necessary to go so far as to make an injection of the renal pelvis with an opaque substance in order to come to a perfectly satisfactory diagnosis as to what the cause of the patient's illness may be. As urologists, we should urge emphatically the immediate investigation of any patient who has pus or blood in the urine. We see in hospitals only too constantly patients coming for relief, especially those complaining of hematuria, in which it would have been possible to make a diagnosis a year earlier, but coming too late for a successful surgical result. Such cases, as you know, are pathetic and they are very common; but if we continue to preach to all our patients the vast importance, especially in women, of investigating accurately the source of any abnormal bleeding of any sort, or of any pyuria, we shall make progress much more rapidly than we are doing now in controlling malignancy and renal infections.

DR. A. E. GOLDSTEIN, Baltimore: I agree with Dr. Quinby's remarks, but he forgot to make mention of one or two things which I am certain both he and Dr. Smith carry out. One is the important teaching that a negative plain roentgenogram does not necessarily mean that a pathologic lesion of the urinary tract is not present. A plain roentgenogram will frequently be negative for calculus and for renal tumor, when very frequently you will find one on the pyelogram. In renal tumors a patient may be seen just at a time when the bleeding has ceased; it may be negative on a plain roentgenogram, and yet on a pyelogram it will be brought out. In the cases of calculi it is the same way. We all know that a large number of cases are negative to the roentgen ray, and we must depend on the pyelogram or the wax bulb very frequently. Another important thing that should be taught the general practitioner is the importance of microscopic blood. Macroscopic blood is not so important, for by the time we see the patient in this condition it is probably too late to do anything for him, but the microscopic blood is very important. Often a patient will be referred and in questioning the family physician about the urinary findings he will say that there are a few red blood cells, he claiming that it does not amount to anything. To the urologist that always means something; but to the average general practitioner it does not, and he should be educated as to its importance.

DR. E. O. SMITH, Cincinnati: I have tried to keep in mind the point of view of the general practitioner. The patients go to him first, and the general practitioner should bear in mind the importance and significance of urinary symptoms. He may suspect something pathologic, and if he cannot clear up the condition within a few days, or within a week or so at the most, he should call to his aid some one who is competent in this particular line. I did not mention the finer methods of precision, the wax tipped catheter and so on, because that does not concern the general practitioner. Dr. Quinby emphasized what the general practitioner can do. He can make a microscopic examination of the urine; he can make a phenolsulphonephthalein test of the kidney function; and if he has a roentgenographer at hand, he can have roentgenograms made of the urinary tract. When he has done these things he will at least have done something, and if he has not been able to locate the trouble by these ordinary means then he owes it to the patient to have a special urologic examination made. I have mentioned in the paper that syphilis is the cause of many urinary symptoms. Urologists often see patients who have been treated empirically for a long time for frequency of urination when they have pronounced spinal cord trouble. The family physician can, at least, make a simple examination and determine whether the patient has such trouble. He can have a Wassermann test made, either in a local laboratory or in a state laboratory. If necessary, he can have both a blood Wassermann and a spinal fluid examination made. The thought I wish to bring out especially is not to treat these patients empirically over a long period of time, but to get busy early and make some definite examination, in order to determine the location and cause of the symptoms, thereby making it possible to apply proper treatment.

DIPHTHERIA PREVENTION WORK IN THE PUBLIC SCHOOLS OF NEW YORK CITY*

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The very successful results obtained by us and by other workers in the active immunization of large numbers of children with diphtheria toxin-antitoxin has stimulated the Department of Health of New York City to begin an active campaign in diphtheria preventive work in the public and parochial schools of this city. Permission was obtained from the department of education to carry out the Schick test and the necessary active immunization in about 250 public schools. Beginning in 1916, a number of schools were Schick tested in the boroughs of Manhattan, the Bronx and Brooklyn. During my absence in war service, the work was continued by Dr. Schroeder and other associates, but it remained limited in extent on account of lack of necessary personnel.

Through the cooperation of the Manhattan Chapter of the American Red Cross, Dr. Park obtained the financial aid necessary to start this work on a more extensive scale. A number of physicians, nurses and assistants were employed and divided into groups. In Manhattan and the Bronx, two groups were working under my direction. Between the end of February, 1921, and the end of the school year we have applied the Schick test in forty-four of the larger schools in these two boroughs, and have tested over 52,000. Those children who gave a positive or a positive combined

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

reaction were injected with toxin-antitoxin. In the first twenty-two schools the injected children were retested with the Schick reaction before the end of the school year, in order to determine which ones had developed an active immunity against diphtheria. The following was the method followed in the schools:

PREPARATION OF A SCHOOL FOR APPLICATION OF SCHICK TEST

An interview was first obtained with the principal or assistant principal, the Schick test and toxin-antitoxin immunization were explained, and the cooperation of the school authorities was invited. Consent blanks and circulars of information[1] to parents were left at the school to be distributed to all the children. Through conference meetings the teachers were addressed by the principal or a physician, and their cooperation also requested. Each child was required to return the consent blank, signed by the parent, with an affirmative or negative statement. The teachers later made out alphabetical lists of the names of those children whose parents had given their consent. Special sheets, called class sheets, were used for this purpose, and also for recording the results of the Schick test and of the injections of toxin-antitoxin.

THE DAY OF THE SCHICK TEST

On the day of the test the children were brought to a classroom, where the physicians and nurses were doing the work. By good cooperation on the part of the principal and the teachers we were able to apply the Schick test and the control test to as many as 500 or 600 children each hour. In one school we tested on one day during school hours 2,400 children, in another double school over 2,700 children. The needles were thoroughly cleaned and sterilized between the tests by wiping them off with a cotton sponge which was placed in a Petri dish and saturated with 95 per cent. ethyl alcohol. A 1 c.c. "Original Record" syringe and a 26 gage one-fourth inch steel needle were found very serviceable for the test.

THE DILUTIONS FOR THE SCHICK TEST AND FOR THE CONTROL TEST

The Schick outfits,[2] so generally used at the present time and so well adapted to the work where small numbers are to be tested, are not very suitable for the testing of large numbers of children. The dilutions for our work were therefore prepared from bulk toxin, as I suggested in a previous communication.[3] The dilutions were made according to the minimal lethal dose strength of the toxin. Our toxin had a minimal lethal dose of 0.01 c.c. A dilution of 1 c.c. of toxin in 1,000 c.c. of saline gave a strength of toxin of which 0.2 c.c. equaled 1/50 minimal lethal dose. To make the reactions more distinct we added 25 per cent. excess of toxin and diluted 1.25 c.c. of toxin in 1,000 c.c. of saline. The dilution thus prepared represented in each 0.2 c.c. 1/40 minimal lethal dose.

For the control test we used instead of 1.25 c.c. 1.5 c.c. of toxin, heated to 75 C. for ten minutes, diluted with 1,000 c.c. of saline. The 20 per cent. excess of heated toxin in the control dilution, as compared with the unheated toxin used in the Schick dilution, was added for the purpose of allowing for any deterioration that might have taken place in the bacillus protein during the process of heating. By observing this precaution we found that children showing a negative pseudoreaction would have an area of redness and later pigmentation equal in size and appearance on both forearms. In consequence there was less danger of mistaking a vegetable pseudoreaction for a combined positive reaction.

The dilutions were freshly prepared each day for the day's work. No diluted toxin was kept over from one day to another.

The rule was adopted always to make the Schick test on the right forearm about 2 or 3 inches below the bend of the elbow, and the control test on the left forearm in a corresponding location. One knew then exactly where to look for the reactions and could thus avoid confusion in the readings.

THE READING OF THE SCHICK REACTIONS AND THE FIRST INJECTION OF TOXIN-ANTITOXIN

From three to seven days after the Schick tests, the reactions were dead. By reading the tests before three days have elapsed, the interpretation of the reactions is not as accurate. Readings made on the third and fourth day showed somewhat better the fading pseudoreactions, but a few doubtful reactions still remained, especially of the positive combined type. These were more accurately interpreted at the later readings. Very faintly positive Schick reactions, however, were likely to show no redness and only a slight brownish pigmentation on the seventh day.

Negative pseudoreactions appear at their greatest intensity at the end of twenty-four hours. By the fourth day, many of these reactions show only a moderate or a faint brownish pigmentation. With some, the shade of redness persists. Others often show a bluish brown discoloration at the site of the test end of the control. Invariably, however, the reactions are quite equal in appearance on the two forearms. Slight differences between the test and control reaction may have no significance. Variations in the bacillus protein content of the test and control solutions, or variation in the technic where different individuals make the Schick test and the control test, may account for these slight differences on the two sides. Marked differences, however, in which the area of redness at the site of the Schick test is always more pronounced and has the other characteristic appearence of a positive reaction, should lead one to interpret the Schick reaction as positive combined. Children who have these positive combined reactions almost always show the more severe local and constitutional reactions after the injection of toxin-antitoxin.

Occasionally we see a small, sharply circumscribed bluish discoloration on one or both forearms. This is produced by slight hemorrhage into the skin at the time of the test, and such reactions are seen quite frequently in children with a hemorrhagic tendency.

The Schick reactions are read as (*a*) positive, (*b*), positive combined, (*c*) negative and (*d*) negative pseudo. The first and second reactions indicate susceptibility to diphtheria, and the children showing these reactions are given the toxin-antitoxin

1. These are standard forms, copies of which may be obtained on application to the author.
2. Zingher, Abraham: A Simple Outfit for the Distribution of Diphtheria Toxin for the Schick Test, J. A. M. A. **65**: 329 (July 24) 1915.
3. Zingher, Abraham: Methods of Using Diphtheria Toxin in the Schick Test and of Controlling the Reaction, Am. J. Dis. Child. **11**: 269 (April) 1916.

injections. The third and fourth reactions indicates immunity to diphtheria.

The term "positive combined" reaction is used to indicate more clearly the reaction previously known as "combined," and the term "negative pseudoreaction" to indicate the reaction generally known as "pseudoreaction." These new terms will help in representing more accurately to the reader the susceptibility or immunity, respectively, of the individual who has been Schick tested.

MIXTURES OF TOXIN-ANTITOXIN AND DOSAGE

In a previous communication [4] I have emphasized the importance of using a mixture which was slightly underneutralized and yet perfectly safe for the human being. In some of our earliest work, we found that the best results were obtained with a mixture of such toxicity that 5 c.c., representing five times the amount injected into a person, would produce a pronounced local induration and late paralysis in the guinea-pig, but not acute death of the animal. Various mixtures were prepared by Dr. Banzhaf of the Research Laboratory and used in the different schools. In some of the schools the mixture used represented about 3 L plus doses of toxin to 3.5 units of antitoxin, in other schools about 5 L plus doses of toxin and a corresponding amount of antitoxin. The different mixtures have given us variable results, which will be stated farther on.

The dose of toxin-antitoxin was 1.5 c.c. instead of 1 c.c., the amount usually given. The number of doses with the larger amount was two, however, instead of three. The two injections were given to simplify the work in the schools if possible and to eliminate many children, who were found to be immune at the time of the Schick retest, from getting the third injection of toxin-antitoxin. The results in the schools, however, point to the advisability of giving three doses rather than two.

The local and constitutional reactions after the injections of toxin-antitoxin varied considerably in different children. As a rule, those children who had given a simple positive Schick reaction showed very little local disturbance. On the other hand, children who had had a positive combined reaction presented considerable local redness, swelling and tenderness of the arm at the site of injection and varying degrees of constitutional disturbance. Some of these children had a temperature varying from 100 to 103.5 F., which persisted for from one to three days. In all children, however, the local and constitutional symptoms subsided without any after-effects. One of the interesting features was the practical absence of even a moderate local reaction among the young children of the kindergarten and Grade 1 A classes.

THE SECOND INJECTION OF TOXIN-ANTITOXIN

One week later, the positive and positive combined reactors received the second injection in the opposite arm. Occasionally a parent objected to the second injection owing to the painful reaction following the first one, but as a rule the two injections were given to most of the children. Children who were absent were seen a few days later and given the second injection.

4. Zingher, Abraham: Preparation and Method of Using Toxin-Antitoxin Mixtures for Active Immunization Against Diphtheria, J. Infect. Dis. **21**: 493 (Nov.) 1917.

RECORD OF SCHICK REACTIONS AND INJECTIONS OF TOXIN-ANTITOXIN

These records were entered on the children's class record cards and on the large class sheets on which the names of the tested children were arranged in alphabetical order. A strict checking up system was used to avoid recording children who had not received the test as giving negative Schick reactions.

SCHICK RETEST OF CHILDREN RECEIVING TOXIN-ANTITOXIN INJECTIONS

A Schick retest was made in twenty-two schools to note the efficiency of the toxin-antitoxin immunization. The late start of the work and the approaching vacations prompted us to retest these schools at an earlier date than we should have otherwise done. These retests were made in most of the schools from two to two and one-half months after the final injection of toxin-antitoxin. One school was retested five months after the injections of toxin-antitoxin.

CERTIFICATES OF DIPHTHERIA IMMUNITY

Two forms of these certificates were issued to the children. One form was given to those who were found to be naturally immune with the original Schick test, and the other form to those who had become immune after toxin-antitoxin injections, as was shown by the Schick retest.

PUBLIC SCHOOLS IN WHICH THE SCHICK TEST WAS CARRIED OUT

Of the forty-four schools in Manhattan and the Bronx in which the Schick test was done, thirty-four were tested by the group of which I had direct charge and the reactions were read by me. Ten schools were tested and read by the second group, of which Dr. O. I. Bloom had charge. The personal equation of many observers reading and interpreting the Schick reactions can therefore be eliminated and the results accepted as being quite uniform. Each child received not only the Schick test but also the control test with heated toxin. The reading of the tests was thus greatly facilitated and rendered quite accurate.

Table 1 shows the schools in which the Schick test was performed, and gives in a tabulated form the total number of positive, negative, negative pseudo and positive combined reactions, and the percentages of these reactions. The schools are arranged in the order in which the susceptible children were found, those having the largest number being placed first in the table.

It is interesting in connection with this table to analyze the density of the population of the different neighborhoods in which the schools are located. It will also be of interest to know the nationality and the race of the children attending the various schools.

(*a*) Public School 11, Bronx, showing the highest proportion of positive Schick reactions, is located in an old established and rather sparsely settled neighborhood. Most of the children attending this school are of American parentage.

(*b*) Public School 77 is also located in a fairly old established but more densely populated neighborhood. Many of the children attending this school are of German extraction.

(*c*) Public Schools 186, 46, 132, 169, 157 and 43 Manhattan are located in the upper west side of the city above One Hundred and Twenty-Fifth Street, in a section including Washington Heights. The children attending most of these schools come from a fairly well-to-do part of the population. The families live as a rule in large and expensive apartment

houses, and the children are kept fairly segregated. Public School 54 is attended by a similar class of children from the Broadway and West End Avenue section of the city.

(*d*) Public Schools 89, 68 and 5 have a large proportion of colored children. In Public School 89 more than 95 per cent. of the children are colored.

(*e*) Public Schools 54, Bronx, and 40, Bronx, are attended by children of the middle class of our population. The neighborhoods in which these schools are located are well populated, but not densely crowded. These schools are attended to a large extent by children of the Hebrew race.

The following schools are located in congested neighborhoods:

(*f*) Public Schools 90, 84 and 29 are on the west side of the city. The children attending these schools are mostly of American parentage. Many of the children are of Irish extraction.

as many as 67 per cent. of the children were found to give a positive reaction. The percentage diminishes as we follow the schools down on the table until we reach the schools located in the densely congested sections of the east side, where not more than 16 to 20 per cent. gave positive reactions.

2. Contact immunity seems to be an important element in the establishment of the so-called "natural immunity." Repeated exposure to the diphtheria bacillus in the congested districts not only causes actual clinical cases of diphtheria to develop but also produces mild infections of the mucous membranes which are not recognized as diphtheria, but which may lead to the gradual development of an antitoxic immunity. This theory has received striking support from the

TABLE 1.—THE SCHICK TEST IN THE PUBLIC SCHOOLS OF MANHATTAN AND THE BRONX, NEW YORK CITY

Public School	Location	Total Tested	Schick Positive *	Schick Negative †	Per Cent. Positive	Pseudo	Per Cent. Pseudo: On Total	Per Cent. Pseudo: On Neg.	Per Cent. Combined: Combined	Per Cent. Combined: On Total	Per Cent. Combined: On Pos.
11-Bx	169th St. and Ogden Ave.	797	200	97	67.0	25	8.4	25.7	3	1.0	1.5
77	1st Ave. and 85th St.	667	430	247	62.9	60	10.3	28.0	58	8.7	13.8
186	145th St. and Broadway	824	460	361	55.8	102	12.3	28.0	6	0.7	1.3
46	St. Nicholas Ave. and 156th St.	900	498	402	55.3	72	8.0	17.9	1	0.11	0.2
132	182d St. and Wadsworth Ave.	768	356	352	50.2	79	11.1	22.4	4	0.6	1.1
80**	Lenox Ave. and 135th St.	956	411	445	47.0	34	3.9	7.6	6	0.7	1.4
48**	128th St. and Lenox Ave.	890	423	473	47.2	62	6.9	12.1	14	1.5	3.3
54	104th St. and Amsterdam Ave.	433	202	231	46.6	36	6.9	15.5	4	0.9	1.9
90	148th St. and 8th Ave.	963	443	510	46.5	89	9.3	17.4	13	1.4	3.0
369	166th St. and Audubon Ave.	875	379	446	45.9	50	24.2	44.8	28	3.4	7.4
5**	Edgecombe Ave. and 140th St.	1,222	519	703	42.4	147	17.0	20.5	34	2.8	6.5
40-Bx	Prospect Ave. and Jenning St.	1,895	792	1,103	41.8	330	17.4	30.0	57	3.0	7.2
157	St. Nicholas Ave. and 126th St.	961	399	562	38.3	157	16.3	26.5	15	1.5	4.0
54-Bx	Intervale Ave. and Freeman St.	1,743	677	766	38.3	318	25.6	41.5	65	5.2	13.8
52-Bx	Kelly St. and Avenue St. John	1,583	603	980	38.0	75	4.8	7.6	9	0.6	1.4
43-Man	129th St. and Amsterdam Ave.	763	285	478	37.6	Not recorded					
84	50th St. and 10th Ave.	612	224	388	36.6	56	9.1	14.4	32	5.2	14.3
29	16 Albany St.	258	91	167	35.2	19	7.3	11.4	12	4.7	13.2
19	14th St. and 1st Ave.	1,485	507	978	34.1	180	12.1	18.4	89	6.0	17.5
61	12th St. and Avenue B.	1,387	481	906	34.7	109	7.8	12.0	57	4.1	11.8
14	27th St. and 3d Ave.	1,242	431	811	34.6	82	6.6	10.1	74	6.0	17.1
96	Avenue A and 81st St.	1,065	346	719	32.5	213	21.0	29.6	47	4.4	13.6
101	111th St. and Lexington Ave.	968	285	683	29.7	Not recorded					
15	4th St. and Avenue D.	1,192	346	846	29.0	168	9.0	12.7	19	1.7	5.4
188G	Houston St. and Lewis St.	1,216	347	869	28.5	307	25.2	35.3	42	3.4	12.1
158	77th St. and Avenue A.	953	263	690	27.5	155	16.2	22.4	30	2.0	7.6
103	119th St. and Madison Ave.	1,363	387	976	28.3	169	12.7	17.3	13	0.8	3.3
45-Bx	135th St. and Brown Place	1,966	521	1,445	26.5	344	17.5	23.8	28	1.4	5.3
39G	125th St. and 2d Ave.	931	243	688	26.1	162	17.4	23.6	23	2.4	9.4
87	115th St. and 3d Ave.	1,368	355	1,013	25.9	Not recorded					
85	1st Ave. and 115th St.	971	252	719	25.9	37	3.8	5.1	29	3.0	11.5
42-Bx	Washington Ave. and Claremont Park	1,284	309	975	24.1	239	18.6	24.5	27	2.1	8.7
188B	Houston and Lewis Sts.	1,460	325	1,135	22.3	278	19.6	30.0	29	2.0	9.0
171	105th St. and Madison Ave.	1,866	414	1,452	22.2	415	22.2	28.5	64	3.4	10.9
78	119th St. and Pleasant Ave.	1,587	440	1,147	22.1	256	14.2	19.1	40	2.0	9.0
20	Rivington and Eldridge Sts.	1,540	321	1,219	20.8	252	16.3	20.6	19	1.2	5.9
159	119th St. and 3d Ave.	1,301	256	1,045	19.6	313	24.0	30.0	47	3.6	18.3
62	Hester and Essex Sts.	1,251	246	1,005	19.5	176	13.9	17.3	25	2.0	10.0
44	9th St. and Avenue B.	1,035	197	838	19.0	175	17.0	20.9	16	1.5	8.0
39B	126th St. and 2d Ave.	847	157	690	18.5	139	16.4	20.1	27	3.1	17.2
102	113th St. and 2d Ave.	1,687	296	1,391	17.5	105	6.2	7.5	36	2.1	12.1
168	104th St. and 2d Ave.	1,569	278	1,291	17.7	325	21.3	26.0	27	1.7	10.0
172	108th St. and 2d Ave.	1,540	253	1,287	16.4	101	6.5	7.8	17	1.1	6.7
83	109th St. and 3d Ave.	2,349	320	2,029	13.6	552	23.4	27.2	67	2.8	20.0

* Schick positive includes positive and combined reactions.
† Schick negative includes negative and pseudoreactions.
** A large proportion of the children attending these schools is colored.

(*g*) Public Schools 61, 101, 15, 188 G, 188 B, 103, 57 and 64 are largely attended by children of the Hebrew race. The schools are located in densely congested neighborhoods of the lower and upper east side of the city.

(*h*) Public School 158 is attended largely by children of Bohemian and Italian extraction.

(*i*) Public Schools 19, 96, 78, 38 B, 39 G, 102, 168 and 172 show a large attendance of children of Italian extraction.

RESULTS OF SCHICK TEST

The results with the Schick test in the forty-four schools given in Table 1 are interesting and significant. They show that:

1. Children from the homes of the more well-to-do have a much higher percentage of positive Schick reactions than those from the homes of the poorer classes of the population, who live in closely crowded neighborhoods. The table shows that in some schools

results of the Schick testing of two private schools and one rural school. I am indebted to Mr. Bowen, secretary of the New Jersey State Department of Health, for the figures at the Lawrenceville School, near Trenton, N. J., where 79 per cent. of boys varying in age from 12 to 21 years gave positive reactions. At the George School, Georgetown, Pa., Dr. D. F. Weeks found that 75 per cent. of the children gave positive reactions. In a rural school at Shilo, Cumberland County, N. J., Dr. Knight of the New Jersey State Department of Health found that 85 per cent. of the children gave positive Schick reactions. These are striking figures and indicate that segregation of the children either among the well-to-do or in rural and sparsely settled sections plays an important factor in retarding the development of the natural immunity to diphtheria.

3. A study of the racial types, as represented by the child population of the different schools, gives other interesting data and shows that the racial factor must also be considered as one of the influences in the development of natural immunity.

(*a*) Children of the colored race, living often in congested neighborhoods, showed, in spite of the crowded conditions, a high proportion of positive Schick reactions. I had had occasion to note this racial peculiarity seven years ago at the Howard Colored Orphan Asylum at Kings Park, L. I., and a year later at the Colored Orphan Asylum at Riverdale-on-the-Hudson.

(*b*) Children of Italian extraction, living in the crowded east Harlem section of New York City, gave the lowest precentage of positive reactions.

(*c*) Children of Bohemian and Irish extraction gave about one-third positive Schick reactions.

(*d*) Children of Hebrew parents varied considerably in the percentage of positive Schick reactions. Those living in the congested sections of the city showed a low percentage, while those living in the upper west side section of the city were among those who gave the highest percentage of positive reactions.

4. The family factor is also of importance in the development of natural immunity. This was brought out in some of our [5] earliest observations on the results of the Schick test in groups of children belonging to the same family. We found that there was a marked tendency for all the children of the same family to show a similar Schick reaction, whether it was positive or negative. Where variations were found in the reaction, the younger children as a rule gave the positive, the older children the negative Schick reactions. The reverse condition, where older children gave a positive and younger children a negative reaction, was very rare, except in families with young infants, who often gave a temporary negative reaction owing to maternal immunity. These observations were repeatedly confirmed in our more recent work in the public schools. While, as a rule, the living conditions and consequently exposure to diphtheria infection are very similar for all the children of the same family, yet we have seen that different families living under closely parallel conditions often show entirely different Schick reactions. There is probably an hereditary tendency on part of the children of one family to respond either readily or slowly and poorly with antitoxin production to repeated mild infections with the diphtheria bacillus. This organism is, as a rule, universally prevalent in larger communities. In New York City, for example, we always have on an average about 4 or 5 per cent. of bacillus carriers.

5. Park, W. H.; Zingher, Abraham, and Serota, H. M.: The Schick Reaction and Its Practical Applications, Arch. Pediat. **31**:481, 1914.

5. Natural antitoxin immunity in human beings can be interpreted, therefore, as a combination of factors, in which contact immunization seems to play the most important part. The racial and the hereditary family factors, however, must also be considered as important elements in the development of such natural immunity.

6. The table shows a fairly high proportion of negative pseudoreactions among children of school age. It is interesting to note that there is a much higher proportion of negative pseudoreactors among the immunes than there is of positive combined reactors among the nonimmunes. We can therefore assume that repeated exposures to infection with the diphtheria bacillus brings about not only an antitoxic immunity, but also a hypersensitiveness of certain predisposed individuals to the diphtheria bacillus protein. The development of this hypersensitiveness renders the cells of the epidermis of the pseudoreactor anaphylactic to the autolyzed protein of the diphtheria bacillus which is present in the test solution of toxin. The infrequent exposure of positive reactors to infection with the diphtheria bacillus accounts for the smaller number of positive combined reactions among them.

Among the colored children we noted a relatively low percentage of pseudoreactions. There seems to be a racial tendency in these children to respond poorly to the antigenic action not only of the diphtheria toxin, but also of the bacillus protein.

TABLE 2.—RESULTS OF DIPHTHERIA TOXIN-ANTITOXIN IMMUNIZATION IN NEW YORK CITY PUBLIC SCHOOLS

Public School	Location	Time Elapsed, Mo.	Preparation of Toxin-Antitoxin	No. Doses of Toxin-Antitoxin	Dose, Cc.	Total Children Retested	Schick Positive	Schick Negative	Per Cent. Negative
90	148th St. and 8th Ave.	5	No. 24	3	1.0	169	20	148	87.5
101	111th St. and Lexington Ave.	2.5	No. 23	2	1.5	152	31	121	76.1
57	115th St. and 3d Ave.	2.5	No. 23	2	1.5	254	90	164	64.5
168	103d St. and 2d Ave.	2	No. 35	2	1.5	213	98	115	52.7
43 Man.	129th St. and Amsterdam Ave.	2.5	No. 23	2	1.5	183	103	80	43.8
43 Bx.	153d St. and Brown Place	2.5	No. 35	2	1.5	397	257	140	35.2
186	145th St. and Broadway	2	No. 23	2	1.5	291	206	85	29.9
132	182d St. and Wadsworth Ave.	2	No. 23	2	1.5	213	154	59	27.7
46	St. Nicholas Ave. and 151th St.	2	No. 35	2	1.5	302	226	76	25.1
157	127th St. and St. Nicholas Ave.	2	No. 35	2	1.5	253	199	54	21.3

RESULTS WITH TOXIN-ANTITOXIN IMMUNIZATION

Table 2 shows a few of the schools in which the children receiving the toxin-antitoxin injections were retested. Public School 90 was the only school in which the children had received three injections of toxin-antitoxin and the retest was made after five months. Of the children, 87.5 per cent. were found to have become immune as shown by a negative Schick reaction. The other injected children gave reactions that were still positive, but were very much fainter than the original reactions. A fourth injection of toxin-antitoxin was given to these children.

In the other retested schools only two injections of toxin-antitoxin had been given from two to two and one-half months previously. Two of these schools (101 and 57), located in the more densely crowded sections of the city, showed 76.1 and 64.5 per cent. positive Schick reactions, respectively. These results compare favorably with those noted in the other schools given in the table, in three of which we had used the same preparation of toxin-antitoxin (Public School 43 Manhattan, 186 and 132). In the last two schools, however, the Schick retests were made after two months. In the remaining four schools noted in the table (Public

Schools 43 Bronx, 168, 157 and 46) a different mixture of toxin-antitoxin was used, but the results were about the same.

One feature of the Schick retests was noticeable. Most of the children who continued to give a positive reaction showed a much fainter area of redness than in the original test. In many instances the brownish pigmentation of the original positive reaction was still visible and was even at this time much larger in diameter than the area of redness of the retest. The fainter reactions in the retests stood out also in striking contrast to the strongly positive reactions of children who had received the Schick test for the first time.

Children who showed a positive reaction, even though it was very small in size and faint in appearance, received one or two additional injections of toxin-antitoxin. Schick retests will be made again next fall, and we expect from the results of our previous experience that most of these children will then give a negative reaction.

TABLE 3.—IMPORTANCE OF AGE IN ACTIVE IMMUNIZATION WITH TOXIN-ANTITOXIN

A.	Infants Under 6 Months:	
	(a) Under 3 mos.	Children mostly immune (maternal). Do not develop an active immunity after toxin-antitoxin
	(b) 3 to 6 mos.	Generally found to be immune (maternal). Toxin-antitoxin may be used, but it is not as effective as when used in the following age-group. A negative Schick test cannot be depended on to indicate a permanent immunity
B.	Preschool Age:	
	(a) 6 mo. to 2 yrs.	Schick test can be omitted in this group, as the proportion of positive reactors is very high. A negative Schick reaction cannot be depended on to indicate a permanent immunity. Strongly advisable to give toxin-antitoxin to all these children
	(b) 2 to 5 yrs.	Schick test may be used first. Positive reactions very high. Procedure can be greatly simplified by omitting Schick test and injecting all these children with toxin-antitoxin
C.	Public School Age:	
	(a) 5 to 6 yrs.	Incoming classes (kindergarten and 1 A). Schick test may be used first. Positive reactions over 65 per cent. Strongly advisable to inject all these children with toxin-antitoxin
	(b) 6 to 15 yrs.	Schick test and control test should be used first. Many negative pseudoreactions must be excluded. Toxin-antitoxin for Schick positive and positive combined reactors
D.	High School Age:	
	(a) 15 to 19 yrs.	Schick test and control test should be used first. Many negative pseudoreactions must be excluded. Toxin-antitoxin for Schick positive and positive combined reactors
E.	Adolescents and Adults:	
	(a) 19 years up	Schick test and control test should be used first. Many negative pseudoreactions must be excluded. Toxin-antitoxin for Schick positive and positive combined reactors

AGE INCIDENCE IN RELATION TO ACTIVE IMMUNIZATION AGAINST DIPHTHERIA

The child population can be divided for purposes of active immunization into five distinct groups.

Table 3 gives in a condensed form the indications for the Schick test and toxin-antitoxin immunization.

A. Infants under 6 months are protected temporarily in fully 85 to 90 per cent. by an inherited maternal antitoxic immunity against diphtheria. The inherited antitoxin not only protects these young children, but it also interferes with the development of an active immunity, when they are injected with toxin-antitoxin.[6] It is, therefore, important to wait until most of this antitoxin has been eliminated before attempting to inject these children with the toxin-antitoxin.

B. Probably the most important period of life in which the toxin-antitoxin should be used is from 6 months to 2 years.[7] A negative Schick reaction in this group cannot be entirely depended on as the reaction changes in many of these infants from negative to positive (loss of maternal immunity.) It is therefore strongly advisable to omit the Schick test and inject all children in this group with the three doses of toxin-antitoxin.

To make certain that we reach most of the susceptible children, it seems to be just as strongly advisable to inject also all children from 2 to 5 years of age. The negative Schick reaction in this age group is probably a permanent index of natural immunity. The proportion of susceptible children, however, is very high, and the omission of the Schick test would simplify this important immunizing procedure for many physicians and thereby make it more certain that a greater number of them would recommend and use it. The simple subcutaneous inection of three doses of toxin-antitoxin would appeal to many physicians who are not thoroughly acquainted with the technic or the interpretation of the Schick test.

The high proportion of positive Schick reactions in children from 6 months to 5 years and the corresponding high morbidity and mortality from diphtheria in this group (80 to 85 per cent. of all diphtheria cases) are strong indications for the active immunization of all children under 5 years of age. The injections of toxin-antitoxin produce very little pain and discomfort in these young children because only very few are hypersensitive to the bacillus protein, as shown by the small percentage of negative pseudoreactions among them. The rule may even be established that the younger the child the more tolerant it is to the injections of toxin-antitoxin.

At all ages it should be remembered that no child can be pronounced immune to diphtheria until he has been proved to be so by a negative Schick test. For this reason the test should always be applied six months or later after the injections of toxin-antitoxin as a final part of the procedure of active immunization against diphtheria.

The foregoing facts indicate that the solution of the diphtheria problem depends on just such a general active immunization of all children of preschool age. Compulsory immunization would be a great forward step in this direction, if public opinion could be enlisted by educational propaganda to the advisability of such a step.

C. The children of school age can be divided into two groups—the entering classes and the higher grades.

1. The entering classes comprise in the educational system of New York City the kindergarten and 1 A grades. This group is of special interest to the health official, as it is through these classes that he is enabled for the first time to exercise his influence more directly on the young children of the community. For the reasons stated above and until we shall have established the principle of actively immunizing against diphtheria all children of preschool age, it will be advisable to inject all children of the incoming classes in our public schools with toxin-antitoxin. The omission of the Schick test

6. Zingher, Abraham: Practical Applications and Uses of the Schick Test, J. Lab. & Clin. Med. 6: 117 (Dec.) 1920.

7. Zingher, Abraham: Active Immunization of Infants Against Diphtheria, Am. J. Dis. Child. 16: 83 (Aug.) 1918.

will simplify the work for the school physician or health officer, who will then be more apt to recommend and use to toxin-antitoxin. If this procedure is followed, there will be created within a few years a diphtheria-immune school population. Until we can do this as a routine, however, we shall have to take into account the many susceptible children, who are now in the higher grades.

2. In the second group, Grade 1 B and upward, the Schick test and control test should be first used for the two following reasons:

(*a*) In many schools the number of positive Schick reactions may not be more than 16 to 25 per cent. In such schools by a preliminary Schick test many children can be saved from getting unnecessary injections of toxin-antitoxin.

(*b*) From 10 to 25 per cent. of children of school age give a negative pseudoreaction (Table 1). These children are not only immune to diphtheria, but they are the very ones who would have severe local and constitutional reactions after injections of toxin-antitoxin.

Schoolchildren who give a positive or positive combined reaction should receive the three injections of toxin-antitoxin. Children who have a positive combined reaction will generally show moderate or fairly severe local and constitutional symptoms. Most of these symptoms subside, however, after from twenty-four to seventy-two hours. In over 50,000 injections of toxin-antitoxin, which we have given during the past four months, we have not seen a single serious result or a single infection. This statement must be emphasized, as the swelling of the arm at the site of injection leads some of the parents to think that the child has "blood poisoning."

D. and E. Children over 15 years of age and adults should always have the Schick test and control test applied before immunization to determine their susceptibility to diphtheria. It is in these individuals that we find the more marked forms of negative pseudoreaction which should be identified as such and not mistaken for positive or positive combined reactions. It may be left optional with the adult individual who has a positive combined reaction whether or not he should receive the toxin-antitoxin.

SUMMARY AND CONCLUSIONS

1. The Schick test and the control test have been applied during the past four months to more than 52,000 schoolchildren in forty-four public schools in the Boroughs of Manhattan and the Bronx. Those who gave a positive or a positive combined reaction were injected with toxin-antitoxin.

2. The results of the Schick test in these schools show that the so-called "natural immunity" depends to a large extent on contact immunity developing after repeated exposures and mild infections with the diphtheria bacillus.

3. The children of the more well-to-do classes of our population show a much higher proportion of positive Schick reactions than do the children of the poorer classes. Relative segregation of the first, crowding and close contact of the second, probably account for these results.

4. The factors of race and hereditary family tendency also seem to influence considerably the development of natural immunity to diphtheria.

5. Negative pseudoreactions were found in some schools in fully 20 to 25 per cent. of the children. These figures indicate that it is strongly advisable always to use the control test along with the Schick test in children over 5 years of age so as to identify accurately the children who show a negative pseudoreaction and thus avoid giving them the injections of toxin-antitoxin.

6. The results of the Schick retests which were made in the schools after two to five months indicate that it is better to wait at least six months before testing for the development of an active immunity after toxin-antitoxin injections.

7. Two injections of toxin-antitoxin, even of a larger amount, do not give as good results as three injections of a smaller amount. The mixture should be under-neutralized and yet perfectly safe for the human being.

8. Children under 6 months should not be injected with toxin-antitoxin. They are generally immune (from 85 to 90 per cent.) and do not respond to these injections, as is shown when they are Schick tested later.

9. All children from 6 months to 5 years should be injected with toxin-antitoxin. The omission of the Schick test is not of much consequence in this age group, as most of the children give a positive reaction. A majority of these children can be reached in the homes, in milk stations, day nurseries, children's dispensaries, infant and orphan asylums, etc.

10. To place the diphtheria preventive work in the public schools of a large city on a practical basis, it is advisable, for the present at least, to simplify it for the school physician by omitting the Schick test in the younger children and by immunizing all children of the incoming classes with toxin-antitoxin.

11. No child, however, should be pronounced as being immune to diphtheria until it gives a negative Schick reaction. The Schick test should not be made until at least six months have elapsed after the injections of toxin-antitoxin.

12. Schoolchildren in the grades above the incoming classes should have the Schick test and control test made before they are injected with toxin-antitoxin.

13. Only reliable outfits for the Schick test and carefully prepared mixtures of toxin-antitoxin are of value in such preventive diphtheria work.

ABSTRACT OF DISCUSSION

DR. CHARLES HERRMAN, New York: Owing to Dr. Zingher's repeated demonstrations before the larger medical societies, the majority of physicians in New York City are familiar with the value of the use of the toxin-antitoxin mixture in the immunization against diphtheria. He has demonstrated statistically that the children in crowded districts are less susceptible because they have been immunized by exposure. This principle has long been recognized in other diseases; for example, in the marked susceptibility of the Indian and Eskimo to tuberculous infection, when he migrates to large centers of population; in the rapid and progressive course of tuberculosis in infants; in the susceptibility of the recruits from rural districts to the communicable diseases of childhood. It is, therefore, not an unmixed blessing to protect the child against all exposure to infection. What we desire is immunity against disease, for the prevention of exposure to infection is impossible in large cities. In the control of the spread of the highly communicable diseases and those in which carriers play an important part,

early and universal immunization is essential. The control of smallpox is due to the fact that practically all infants have been vaccinated. The campaign has been begun with the immunization of schoolchildren because that was an easy and controllable point of attack. After physicians and laymen are convinced of its value, there will be less difficulty in immunizing all infants. Education is required. In my private practice I found that only 10 per cent. of the mothers immediately recognized its value and were glad to have their babies immunized. An additional 10 per cent. consented after a little explanation and persuasion, but there remained a large number who preferred to wait. Some told me frankly that they did not believe in vaccination, but they had had it done because the child could not be admitted to school without a vaccination certificate. There are still a large number of believers in the various cults, who are antivaccinationists, antivivisectionists and anti-immunizationists. Possibly some day a certificate of immunization against diphtheria will be necessary for admission into school, so that all the conscientious objectors to that will also be brought into the fold.

DR. EVERETT W. GOULD, New York: If Dr. Zingher's claims can be maintained, it is quite possible that in the near future diphtheria may be just as much under control as is smallpox. It depends, however, on the way in which the general profession accepts the contention that the Schick test is a reliable indication of the susceptibility to diphtheria, and, of course, whether toxin-antitoxin gives an extended immunity. In this connection it may be wise to state some of our experiences. During the last seven years all the children that have come to St. Luke's Hospital have been given the Schick test, and only those showing a positive Schick reaction have been immunized against diphtheria. During these seven years we have not had more than four cases of diphtheria developing in the children's ward of our hospital who have shown a negative Schick reaction. It was not possible to say whether they were actual cases of diphtheria developing in children who previously showed a negative Schick test, or whether they were cases of tonsillitis and diphtheria carriers, or instances in which the negative Schick test was due to errors in technic. Our subsequent experience, however, has led us to believe that one of the two latter conditions prevailed. It is not always easy to do a Schick test properly. The technic advised by Dr. Zingher should be very carefully followed. It is also necessary that the Shick test should be read on the first, second and especially on the fourth or fifth days. We have frequently made a negative reading on the first and second days and found a distinctly positive one on the fifth day. Several years ago a nurse who had a negative Schick reaction developed a sore throat. The culture was negative, and no antitoxin was given. Two days later she had a severe laryngeal diphtheria. We reported this case to Dr. Park and Dr. Zingher to show that the negative Schick test was not always reliable. Two years later we tested that nurse and found that she had a positive Schick reaction. That means that some error was made in the original Schick test. This brings out an important point that in the presence of a negative reaction and a suspicious tonsillitis, it is best to give a dose of antitoxin at once, not because we do not have faith in the Schick test but because we may have made a mistake in the Schick test or in the proper reading of it.

DR. JOHN M. DODSON, Chicago: One of the things which stand out most conspicuously with reference to diphtheria as brought out in this discussion is the rapidity with which the efficiency of toxin-antitoxin diminishes as the days go by. The importance, therefore, of seeing the case and of administering toxin-antitoxin the first day cannot be too strongly emphasized. To secure this is chiefly a matter of education of the parents. The medical profession, and particularly those who are interested in children, should be kept closely informed as to the movement inaugurated by the American Medical Association for cooperation with the teachers of the country with regard to the health program in the schools, seeking more effective education of schoolchildren in health matters. The response of the educational world to that program has been gratifying, and important results have been accomplished. A year ago in New Orleans, the House of Delegates voted to instruct the Council on Health and Public Instruction to urge on the state medical societies the inauguration of such a movement in each state. Forty-two state medical societies have appointed committees, usually of five each, to attend the state teachers' associations, to bring this matter to the attention of the teachers and to ask for an appointment of a committee from the teachers' side to study the health problems of the schools and devise ways for their solution. If all the states respond we shall have an army of 400 or 500 teachers and physicians working to this end. All of these committees can do work in gathering information, but the movement must become localized in the several cities and rural communities if we are going to get results. I would urge on each of you, as you return to your states, that you interest yourselves in this matter and keep in touch with this movement and do everything you can to promote this earnest, effective cooperation between the two great professions which are most closely in touch with children, and hence can best bring about improvement in this matter, the medical and the teaching professions. If that movement is sustained as heartily in the states as it has been between the two national associations, another decade will see a great improvement and a great advance in the health of our schoolchildren and in their knowledge of health matters.

DR. EDWARD L. BAUER, Philadelphia: The figures which have been presented make a formidable mathematical array in support of this test, which has been or should be generally accepted at its face value. Independent observers, after acquiring a skill and expertness in performing the test, cannot do anything else except prove the consistency and accuracy of these data. When we hear of men testing 50,000 children, it requires considerable courage to tell you that we have personally tested 5,000 children; but in that 5,000 we can corroborate the statistics given by Dr. Zingher. Philadelphia does everything conservatively, but "gets there" in the end. We have taken up this work with the idea of finding out its value by assigning one man to do the work, first seeing that he has observed enough of it so that he can come back and say yes or no to its value, and then working it out with the idea of educating the medical inspectors, the school inspectors, and ultimately training the physicians and the public in the value of this work. Unless a community takes up a problem of this kind in this manner, there are going to be a great many drawbacks. One child that had had a previous negative Schick test developed what was diagnosed as laryngeal diphtheria. Positive cultures were obtained and guinea-pig inoculations proved fatal to the pigs. Antitoxin in large quantities did not help the child. Months later the child was referred to Dr. Chevalier Jackson, who cured it promptly by removing a safety pin from its larynx. In dealing with the problem of cases reported as diphtheria in which the Schick test is negative, I like to get a sample of the blood before giving the child antitoxin and perform Römer's test on the blood, so as to determine the actual blood antitoxin content. It has been a matter of great satisfaction to find that Römer's test and the Schick test have been consistent.

DR. EDWIN H. PLACE, Boston: Our experience agrees with Dr. Zingher's in regard to the value of the Schick test. One point has not been emphasized, and that is the value of the Schick test for diagnosis in clinical cases. In cases which are so mild that antitoxin can be postponed for twenty-four hours or less, you can add remarkably to your clinical knowledge by making the Schick test. In cases of laryngitis in which the cultures are positive from the throat and nose, diphtheria has been demonstrated by a positive Schick test, and such patients have been cured with the prompt administration of antitoxin.

DR. ABRAHAM ZINGHER, New York: I wish to warn you against using diphtheria toxin-antitoxin as a therapeutic agent. I have heard of instances in which physicians attempted to treat cases of diphtheria with toxin-antitoxin. Under such circumstances it is worse than useless in that it leads the physician away from using the only rational therapeutic measure at his disposal—diphtheria antitoxin.

Nor should toxin-antitoxin be used as a prophylactic agent, when there is immediate danger after exposure to a case of diphtheria. The antitoxin develops too slowly after the injections of toxin-antitoxin to be of value in acute emergencies. The indication is to give immediately a prophylactic dose of antitoxin to all those who have been exposed and show a positive Schick reaction. In the May, 1921, number of the *American Journal of Diseases of Children*, Dr. Blauner claims to have noted diphtheria in naturally immune children who gave a negative Schick reaction, and also in actively immunized children who showed a negative reaction after injections of toxin-antitoxin. These cases were carefully investigated by Dr. Park, and the results indicate that there was an outbreak of streptococcus tonsillitis in the institution in which over 40 per cent. of the children were diphtheria carriers. The author's conclusions seem to be erroneous. The fact that all the cases noted during the outbreak occurred only on one floor of the institution, whereas both floors were found to contain almost an equal number of diphtheria bacillus carriers, and also the fact that among the isolated virulent diphtheria strains there were three different agglutinative types of Klebs-Loeffler bacilli, point to the probability that we are dealing here with an acute outbreak of tonsillitis occurring in an institution in which a high proportion of the children were diphtheria bacillus carriers. Among the children who were ill during this outbreak, eight had positive cultures and two had negative cultures. We must assume rather that the high degree of immunization of the children in this institution prevented a serious outbreak of diphtheria, in spite of the fact that so many of them were carriers of virulent diphtheria bacilli. It is interesting and significant to note that the practice of applying the Schick test, and, when necessary, the toxin-antitoxin immunization, continues in that institution to the present day. The remarks of Dr. Place about children developing a negative Schick reaction after an attack of diphtheria are interesting, but they do not quite correspond to our own observations. We have found that only about one third of these children gave a negative Schick reaction. These results correspond with the clinical observations of many physicians who have noted repeated attacks of diphtheria in the same individuals. A negative Schick reaction, therefore, cannot indicate that a child has recovered from an attack of diphtheria. On the contrary, it seems to me that, given a suspicious throat exudate, plus a positive throat culture in an individual who has not been Schick tested previously but two or three months later shows a positive reaction, the diagnosis of diphtheria is rendered more than probable. Children, however, who remain in the diphtheria pavilion a long time, as for instance chronic tube cases, almost invariably develop a negative Schick reaction. Repeated exposure and mild infections explain this observation. Literature on the subject of the Schick test in the public schools of New York City can be obtained from the Research Laboratory by making such a request through the mail.

The Antivivisectionists.—Antivivisectionists, being one of the few groups of reformers who could make no particular capital out of the war, are hoping to advance their cause on the general wave of reform with which the country is flooded. They are welcome to their cause and they are privileged to agitate, but we beg that they will stick to the truth and not produce as authoritative the evidence of shyster doctors. Let them also cease perverting the testimony of eminent scientists. One such, we recall, had his revenge on them some twenty years ago in England. He haled them to court and got judgment against them for £5,000, which he promptly devoted to carrying on certain important experiments in vivisection. No one, it is true, can consider the whole question of animal experimentation, even under the control of the new anesthetics, without some misgivings. What is absolutely essential is the assurance of those qualified to speak both that the old brutalities have been done away with and that vivisection is truly leading to benevolent results in medicine. It is a question not outside the people's province, but one which they should never deal with in haphazard fashion.—*The Weekly Review.*

FACTORS WHICH INFLUENCE RESULTS AND MORTALITY RATE IN KIDNEY SURGERY

ANALYTIC STUDY OF TWO HUNDRED AND SIXTY-THREE OPERATIONS *

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There has been a most gratifying progress in kidney surgery during the last twenty years with results that are steadily improving and a mortality constantly on the decline.

There are few organs in the body in which the psysiology as well as the pathologic changes are so thoroughly understood. This gradual progress has been due to three developmental phases: the investigative, the interpretative and the manipulative.

INVESTIGATIVE PHASE OF DEVELOPMENT

Modern medicine has been particularly kind to urology in giving to it facilities for thoroughly studying its many phases of health and disease. No longer should urinary disorders be treated symptomatically. Our progress in this direction has been not only in the great advancement of special urologic investigation but also in the education of the general profession to the knowledge that a scientific understanding of kidney diseases is almost always possible, and we must not cease in our efforts to propagate this education.

There are five cardinal symptoms and findings of kidney diseases, namely, pus, blood, pain, tumor and bladder irritability; and if the medical profession could be made to realize their grave significance, results and mortality rate would be decidedly improved, since an early diagnosis means early lesions usually uncomplicated by deleterious consequences, and in patients who are fit subjects for surgery. Indeed, many such individuals could be protected from surgery, if they were seen early; this is particularly true of the infections.

Most of the kidney diseases are treated symptomatically, for long periods, for one or the other of these conditions; and a tumor, pyonephrosis, tuberculosis, stone or hydronephrosis, is allowed to develop into complicating conditions. In analyzing my series of kidney infections, the average duration of symptoms was found to be four and one-half years, and in many instances a urinalysis has not been made. Another probable reason for this delay is that there is a current belief that a few leukocytes in the urine are not significant of a pathologic condition. There is also a tendency to discriminate between a leukocyte and a pus cell in the urine. I have never yet been able to figure out the exact basis of this discrimination. At any rate, the disregard of the occasional pus cell has had a powerful influence in delaying early investigation of kidney lesions, and our mortality record shows that the late infections produce the highest death rate. The same holds true in tumors. The average duration of symptoms was three years; onset had been hematuria, and in most instances no attempt had been made to determine its source; 25 per cent. of our patients

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were inoperable when they presented themselves. There is a common belief that such intermittent bleedings are attributable to strains or ruptures of varicose veins and are treated with great levity; on the contrary, they should be interpreted seriously.

In my series of ninety-seven tuberculous kidneys, the average duration of symptoms was twenty-two months. During that time 29 per cent. had become bilateral, and practically all of these individuals had been suffering from progressively increasing cystitis with frequency, pain and occasional hematuria. If symptoms of cystitis do not clear up within a week or ten days of local treatment, there is some associated lesion, which should warrant investigation. In younger individuals, this type of bladder will be frequently secondary to renal tuberculosis. Of the unilateral, typically operable cases of renal tuberculosis, which have occurred in my series, 20 per cent. have gone without operation, because their physicians have advised medical treatment. It behooves us to make strenuous appeals against such advice, since there has never been a well authenticated case of complete spontaneous healing of active renal tuberculosis and, furthermore, the operative results are so good—mine show 70 per cent. cures with no mortality in fifty-six cases in which operation was performed.

Realizing this and faced with the almost assured invalidism from bladder involvement, and possible extension to the other kidney under medical treatment, we must not hesitate to appeal for an early nephrectomy.

Abdominal pain offers perpetual confusion; the proneness to incriminate the appendix as the cause of right side abdominal pain, without further study, is becoming less prevalent. Several years ago in looking over our renal calculi, it was found that 27 per cent. had had previous appendectomy; in the last few years it has been cut to 10 per cent. A urinalysis and roentgen-ray examination, in most of these cases, would have been of the greatest help. It is often difficult to discriminate between the different abdominal pains, particularly the right sided ones, and a thorough differentiation often entails considerable study. It is encouraging to see that much more accurate differentiation is being made, with fewer mistakes as a recompense; but there is one type of kidney disease which still presents great confusion, namely, intermittent hydronephrosis, due to a slight movability of the kidney, ureteral kinks, aberrant vessels, etc. Here the individual suffers with intermittent colics, often reflected along the ureter, in the region of the appendix. The roentgen-ray examination and urinalysis are usually negative. At least 20 per cent. of our patients have had previous appendectomy without relief. With such symptoms and negative findings, one should always investigate the kidney before doing an abdominal exploration; the ureter catheter and roentgen ray will always decide the problem. In the first place, there is usually found renal retention. Consequently, on filling the renal pelvis for pyelography, one can always, if it is a kidney pain, be able to reproduce this pain. The patient will say, "Doctor, that is my pain." This is the most important diagnostic point. In taking pyelograms in these individuals, it is wise to use two positions, lying and sitting. The condition may have not lasted sufficiently long to produce pyelographic change in the calices or pelvis. In such instances, one may be able to show twists or kinks at the ureteropelvic juncture and change of position in the kidney pelvis. So with careful investigation, one can always show whether or not a kidney is responsible for the abdominal pain. This educational feature, with a responsive cooperation on the part of the medical profession, will do more to influence our results than any other factor.

INTERPRETATIVE PHASE

The interpretation of findings is more or less standard, but will of course vary, dependent on the individual's experience: the better one is trained and equipped, the fewer mistakes of interpretation will occur.

In unilateral renal tuberculosis, we are of one accord in suggesting the prompt removal of the tuberculous kidney, the earlier the better, in order to protect the other kidney from becoming involved, and also the lower urinary tract from advanced infection. If in a case of hematuria or of a tumor mass in the kidney region, one finds pyelographic evidence of tumor, here again, there is no dissension as to what is best to do, Many of the problems of renal calculi are uniformly regarded; others in this group, however, are not so thoroughly settled, but in our changes of interpretation of the calculus problem, conservatism is becoming more preached. The two diseases which have offered more difficulties of interpretation than any other have been renal infections and intermittent hydronephrosis. One must not lose sight of the fact that a kidney which is infected may show temporarily very low function, just as an individual will have low function when he is sick. The problem to determine is whether this function is permanently low, or one that is capable of being restored to normal; this can be done only by repeated analysis. Our present day conception of the surgical kidney is extremely at variance with that of former ideas. The acute coccal infections, causing multiple septic infarcts, the so-called brewer kidneys, which were formerly removed, have in my experience almost invariably been relieved without surgery. The acute bacillary infections, the most common ones, often create a wrong impression. If a kidney is acutely infected with the colon bacillus and has retention, it may show very low function. With the relief of retention and infection by means of ureteral catheter drainage, such a kidney will often promptly come back to normal function. I know of two recent instances in which an acutely infected kidney was removed without study, and in both instances a kidney, almost completely destroyed by a silent calculus pylonephritis, was lying tucked away on the other side, this being the original focus. Both of these patients showed retention in their only kidney, and both were ultimately cured by a preliminary course of ureteral catheter drainage and cleansing the kidney pelvis, followed by a pyelotomy with a removal of the stone.

The interpretation of the phenolsulphonephthalein test is very important in these infections. In the acute infection, the phenolsulphonephthalein output of the opposite kidney will be about normal, and the infected kidney may show no function or a very low one. After catheter drainage, they both come within normal limits, naturally, depending on the amount of destruction the infection has caused in the kidney. In old infections, without obstruction or foreign body, the low function

will usually remain so and not fluctuate as in the acute, and the function of the other kidney is likely to be decidedly higher than normal. This estimate of compensation function of the sound kidney gives us our greatest index as to whether or not a kidney should be removed. It is repeated study of function that allows us to interpret the capacity of a kidney and enables us to save many kidneys, which otherwise might be sacrificed. I have passed through an interesting experience of an infected hydro-ureter:

This patient had been in poor health for many years and operated on several times for pain in her left side and bladder trouble, without relief. I saw her and found enormous dilatation of the left ureter, which measured about 1½ inches in diameter from the bladder to the kidney pelvis. The kidney pelvis showed not the slightest dilatation. The ureterogram showed a complete constriction at the juxtavesical ureter. The ureteral catheter recovered 8 ounces of infected urine from this ureter; the function of this kidney was impaired, that is, about one-third normal. Repeated drainage and dilatations were productive of no benefit to the patient. Four months ago, I slit the vesicle end of the ureter for a quarter inch; following this there was a gush of urine. The patient was immediately relieved, and in the meantime her infection has cleared up; ureteral peristalsis and her kidney function are both normal. This demontrates that after such a long obstruction, ureteral peristalsis may be resumed and the function of the kidney restored.

MANIPULATIVE PHASE

In formulating the plan of procedure in the treatment of intermittent hydronephrosis, it is of course essential to determine the cause. Strictures or obstructions in the ureters must be relieved; stones, removed, either intra-ureterally or by open operation. In case the hydronephrosis is due to slight movability of the kidney, with productions of ureteral twists, the problem is somewhat variable. In some instances, the mere passage of the ureteral catheter into the pelvis, relieving the retention, will cure the individual. I have seen any number of cases of this kind. Some require several drainages to secure relief. Many, however, must be subjected to surgery, in order to correct the movability. In some instances, the cutting of an aberrant vessel will solve the problem. It is often difficult to decide just when to advise a patient that an operation is necessary for a right side pain, which we know is due to a slight hydronephrosis without infection or often with infection. If relief of retention is secured by catheter drainage, they are put under observation. If the condition promptly recurs and is not relieved by such treatment, they are advised to have renal fixation, since my experience with a corset in this case has not been satisfactory. This operation, in my experience, has been one of the most satisfactory kidney operations. Out of thirty such operations, there has been one partial failure. The rest have been completely cured. Fixation operations have suffered a black eye, since the promiscuous fixing up of a loose kidney in the asthenic individual, in the presence of a visceroptosis, frequently proved ineffective and usually harmful. In properly selected cases of renal movability, which are productive of hydronephrosis with symptoms, when the pain can be reproduced by pelvic distention and in which the pyelogram taken in two positions, lying and sitting, shows angulation and twists, this operation is attended with gratifying results.

After one has made an accurate diagnosis and concluded that surgery is necessary, the next step having an important influence on results and mortality is the proper preparation of the patient for surgery. It is just as important in an operation on the kidney to see that the kidneys are in good condition, as it is in prostatic surgery, in which the appreciation of the kidney function and capacity has been the one feature which had made this operation safe. One must always have a complete understanding of the individual as a whole; the heart, lungs, blood stream and nervous system must be accurately studied, and let me say that a kidney drainage operation done in the face of a nerve lesion is a very serious proposition. Two of my five deaths occurred from drainage abscesses of the kidney in patients with central nervous system diseases. Both died from hemorrhage, which started promptly after the opening of the kidney, and which could not be controlled.

Our efforts now are directed to putting the individuals in the best possible condition before the operation and never operating too hastily. Patients suffering with infections are treated by preparatory drainage. In cases of renal calculi, with infected hydronephrosis, the ureteral catheter is often left in place for drainage, until it can be determined whether or not the kidney should be removed, or until the condition of the kidney has so improved that the stones may be removed with greater safety. The same procedure is adopted in an infected hydronephrosis or pyonephrosis which requires removal, to improve the patient's general condition, and often to relieve a sound kidney of a toxic nephritis. A good illustration of this occurred to me within the last month:

I saw a patient who was extremely toxic, had lost a great deal in weight, was very thin and pale, and had been treated for intermittent chills and fever. On examination, I found he had an 8 ounce retention of infected urine in the right kidney. I put him in the hospital, kept a ureteral catheter in place, with several changes, for ten days, and it was remarkable to notice his improvement. The phenolsulphonephthalein output was always negligible on the diseased side. The sound kidney showed about normal on the first examination; ten days later it was putting out double the amount of a normal kidney. This patient was transformed from a poor to an excellent surgical risk.

The same procedure is done in most cases of renal infections, and I am confident has the greatest bearing on the result. I do not believe that any one should operate immediately on a kidney with an infected retention, if the patient is feeling poorly, when renal catheter drainage will put him in so much better shape. In stone cases, which require pyelotomy or nephrotomy, the kidneys are put in much healthier condition, and the postoperative course is much better. These patients are all given large amounts of water by mouth, urinary antiseptics, particularly acid sodium phosphate and hexamethylenamin, and the bowels are kept free. If their hemoglobin is low or if they are very septic, they should be transfused. Rectal tap is given as a routine the afternoon before the operation, and those who appear sick and seem to be bad surgical risks are given hypodermoclysis. They are not purged, but are given an enema the morning of the operation. In this way, most of them who come to surgery are in good condition and should not be brought to surgery before they are, unless it is urgent, in the same way as in the case of the prostatic. It is more or less routine with patients in whom we may expect trouble, such as large tumors or pyonephrosis, to give hypodermocylsis freely the night and morning before the operation, in order

that their tissues may be saturated. In this way, I am sure that shock is prevented or at least minimized. I recently removed a tumor 11 inches long by 7 inches wide, from a patient who was not in the best condition, without the slightest change in pulse and very little in blood pressure. One of our previous deaths had been from shock in just such a patient. As a routine, we give morphin and atropin, except for occasional cases, when I have used twilight sleep.

With thoroughness of diagnosis and careful preparation, the individual comes to the operating table as a much better surgical risk, offering the surgeon a decidedly better chance for a good result and a lower mortality. It is then that the manipulative qualities of the surgeon and surgical judgment will show their influence in the ultimate outcome of the patient. There are many features in the manipulative side of kidney surgery which have such an important influence on the final outcome that they will be taken up in more or less detail.

Kidney surgery, properly done, on subjects fitly prepared, should be attended with almost negligible mortality and with extremely few complications.

CHOICE OF ANESTHETIC

The choice of anesthetic depends more or less on the individual operator. My own experience is that gas and oxygen is unquestionably the best anesthetic, and almost invariably a kidney operation can be done under gas, except in some instances, when a little ether may be needed to give primary relaxation; in this way there is no added element of renal irritation such as occurs in ether, which is naturally a very important feature. Again, lung irritation is curtailed; and since 30 per cent. of all kidney operations are done for tuberculosis, it is extremely essential in this alone not to have a pulmonary irritant. In our fifty-six operations on the tuberculous kidney, there have been but three slight pulmonary complications. I feel sure that lung complications will be far less frequent following gas anesthesia. Furthermore, the patients are usually awake before leaving the operating room and are in much better condition generally.

POSITION OF PATIENT

The position of the patient is extremely important. Most operators agree on the lumbar route; but as one observes the different operators, there is noted great variance in the position of the patient and naturally great difference in exposure. In my hands, the best position is the lateral one, in which the patient's arm and leg on the side of operation are extended, the patient being elevated at the break of the rib, with the under arm through to the front, rather than back of him. In this way, the lumbar region is put under tension and one is able to get at least 2 inches more room than if the upper thigh is flexed and the under arm is back of the patient. With this position, a free incision should be made from below the twelfth rib at its juncture with the deep muscles of the back obliquely downward and forward between the rib and crest of the ilium, keeping away from the crest of the ilium and nearer the rib margin; in this way, exposure is better, closure is more satisfactory, and the results in wound healing are much more comfortable. The muscles and fascia should be cut through, attention being paid to the twelfth dorsal ilio-inguinal and ilio-hypogastric nerves. It is important to sever the costovertebral ligament in order that the rib may be mobilized, and to extend the incision downward and forward so that free access may be had to the kidney. In this way, one will rarely ever have to resect a rib, and heavy retraction will never be necessary.

VARIOUS PROCEDURES

In 263 operations on the kidney, I have resected one rib—this was really out of curiosity. In the last 150 cases a retractor has never been used for pulling tissues—merely to hold back fat. Perirenal fat should be opened posteriorally, grasped with tee clamps, and the kidney freed by very gentle manipulation with fingers between the fatty and true capsule. One should be extremely careful, in going around the kidney, not to make undue pressure, but feel gently along in order not to tug on the pedicle and not to rupture an aberrant vessel, playing gently on the kidney, stripping away the surrounding tissues. The organ, which should be held steadily in the hand, can be freed of its surrounding attachments either by gauze or by sharp dissection until the organ is free and the pedicle exposed. Very gentle manipulation should be executed in the region of the pedicle; absolutely no tugging or pulling should be done. In this way shock can be reduced to a minimum. Should the peritoneum be opened, it should be promptly sutured. This complication seldom amounts to much. I opened the peritoneum eight times in 263 operations without any complications; this usually occurred in the calculus pyonephroses, tuberculosis or tumors.

Dependent on the type of operation, the rest of the steps vary with the condition. For nephrectomy, it is wise to free the ureter, ligate it, and cut it with the cautery. It is then lifted upward over the kidney; in this way the vessels are readily accessible. In handling the pedicle, I have great comfort in using a large, curved pedicle clamp, clamping the vessels *en masse*, relaxing the kidney during the clamping in order to have the vessels not on tension, and then cutting the kidney away from the pedicle far enough from the clamp to leave the tip of vessels exposed in order that they may be grasped with other clamps. In tying off the pedicle, I have used a No. 2 double catgut stitch on a needle, transfixing the pedicle between the vessels and tying with a figure-of-eight knot under the clamp, releasing the pedicle clamp while tying. In this way there is absolutely no chance of slipping. The pedicle is fortified in three ways and may be handled in this manner in several minutes.

In case of nephrotomy, it is wise to follow Cullen and Derge's method of opening with a blunt instrument. It has been customary to use a large kidney needle, threading it with silver wire. This is inserted into the part of the kidney to be opened; the capsule is cut between the two parts of the wire; and by sawing on the wire with an assistant holding the kidney steadily, the kidney is opened from below upward, and bleeding is very slight. Nephrotomies are usually done on a limited part of the kidneys, and seldom do we see the old necropsy incisions of the past. The kidney is sutured with mattress sutures of catgut by means of blunt needles. In order not to have too many stitches, it is often very satisfactory to basket the kid-

ney by starting the suture on opposite sides and tying the long ends over the kidney. In this way sufficient compression is made to stop any bleeding. In the usual stones cases, the kidney is seldom drained, but always closed and a drain put to the kidney. There has been but one leakage of urine from a nephrotomy for stone, and with this case there was a fragment of stone left in the ureter which was later removed.

In the severe pyonephroses, or calculous pyonephroses, in very sick individuals, particularly children, I have made it a practice to do a two stage operation, either for nephrectomy or nephrolithotomy, and I feel confident that several lives have been saved by this procedure. While it is supposed that secondary nephrectomy is much more difficult, in my experience it has offered no particular trouble, provided the second stage is done within three weeks. In children, particularly, this operation is advisable, since they are so ill that the least thing will break the balance. They are much worse after their first stage than after their second. The latter is usually tolerated without any difficulty, similarly to prostatic enucleation. At the first operation, while it is contrary to the accepted rules of surgical practice, I have found it wise to free the kidney posteriorly, to a certain extent, in order to have a cleavage line for the second operation. By so doing, the removal of the organ takes but a few minutes, since at this time it is contracted down to nothing but a nubbin. I have had no mortality in these very severe cases which have been done by the two stage method, and I feel sure that if an attempt had been made to remove the very large kidney, most of these patients would have died.

In pyelotomy, the chief points are the opening of the pelvis posteriorly, away from the posterior pelvic vessels, by clean and careful incision, keeping away from the ureteropelvic juncture, and being careful in entering the opening with the finger, in case the finger is used for stone, in order that it will not be torn. In stones in the calix, not easily grasped with forceps, I have found a very satisfactory method of inserting the little finger through the pelvis into the calix and tapping the kidney over the stone with the other hand, causing it to follow the little finger, using the little finger instead of the index, because it is more accessible to the pelvis on account of the position and on account of its size, insuring less damage to the pelvis. After removal of the stone by pyelotomy, the pelvis should be thoroughly irrigated, and the walls carefully stitched, reinforced by the so-called Mayo fatty fascial flap.

In twenty-three pyelotomies, I have had but one leak urine after operation. One of my cases was done for a stone in a tuberculous kidney, which healed primarily without leakage. To show how securely the pyelotomy holds: In one case, which was closed in the face of an acute infection, there developed a large pelvic retention—more than 2 ounces of infected urine drained by means of the ureteral catheter from the pelvis without its leaking. This operation should be used more and more for pelvic stones, except for the branches and extremely large ones. It is extremely important after stone operations, whether they be extracted through the kidney or its pelvis, promptly during convalescence to instil the pelvis with silver nitrate in order to eliminate infection and hurriedly to heal any granulations. This very important part of stone surgery is much neglected; its practice, I feel confident, will prohibit much of the high stone recurrence. In my personal experience I have seen but two recurrences in seventy-one cases.

NEPHROPEXY

The fixing in position of a renal movability producing renal retention is the most important technical operation on the kidney. In many instances, the mere hooking up of a kidney will suffice to cure the movability; but in the movabilities with twists, kinks and torsion, one not only has to elevate the kidney, but also to place it in a position to prevent torsion. It is extremely important to pay keen attention to the insertion of the ureter and pelvis, being sure there are no aberrant vessels, kinks and no adhesions in this neighborhood. When this location is free, the perirenal fat is massed in a ball beneath the kidney, according to the technic of Bartlett. In this way the renal socket is obliterated so that the kidney has no room for oscillation. The fat is then sutured to the deep muscles of the back, after the kidney has been put in its proper position. In this way any downward movability is prevented. I have never been satisfied that this is sufficient, although I have seen cases done by this method alone in which the results were very satisfactory. Since many of such kidneys have twists and torsions, I have felt it important to fix it carefully in position by catgut sutures to the deep muscles and fascia of the back. Throughout this operation, one has to be extremely careful to have the insertion of the ureter into the pelvis perfectly straight and free. With care in technic, this operation should be highly successful.

COMPLICATIONS

In summarizing the operative and postoperative complications of my 263 cases, hemorrhage occurred eleven times; severe in two instances, both of these resulting in death. Seven other hemorrhages occurred following nephrotomy, but were very mild, and did not cause the patient any degree of shock. Hemorrhage occurred twice during nephrectomy, first, from tearing a small, aberrant vessel at the upper pole, and the second time from the slipping of the pedicle; and I am sure that this could not occur in the present way of dealing with it. There has been no injury to the bowel. Shock has occurred nine times, only twice in nephrectomy. The other seven cases of shock occurred in sick children and in the very toxic individuals, most of whom were suffering with pyonephrosis. In many of these individuals, I am sure death would have occurred if anything more had been attempted. The fact that shock has occurred but twice in 160 nephrectomies in an illustration of its rarity following clean kidney surgery. These patients almost invariably were up in the wheel chair on the tenth day. The majority of the clean cases left the hospital at the end of two weeks—very few remained in the hospital after three weeks.

In classifying the diseases which compose the operative list, there were seventy-one operations for stone; of these, 20 per cent. were by nephrectomy; 25.3 per cent., nephrolithotomy; 32.4 per cent., pyelotomy, and 22.3 per cent, combined pyelotomy and nephrolithotomy. The latter operation is much higher than I

had anticipated. It is done for sandy impactions, or multiple stones when their removal by pyelotomy is difficult or impossible. In the sandy deposits so common with us, a through and through irrigation is very important. In the stone operations, two deaths have occurred, both in patients with definite organic disease of the nervous system and one with diabetes. They both died following nephrotomy for calculus pyonephrosis with perinephritic abscess.

There were fifty-six operations on the tuberculous kidney: fourteen for tumor; thirty for movable kidneys with intermittent hydronephrosis; eight large hydronephroses; seventy-nine for kidney infections, that is, pyelonephritis, thirty-eight; pyonephrosis, thirty; perinephritic abscess, eleven; five decapsulations, making a total of 263 operations.

There have been five deaths in the 263 cases, a gross mortality of 1.9 per cent.; one patient died of shock following nephrectomy for tumor. The other four deaths occurred following nephrotomies: two for pyonephrosis and two for calculus pyonephrosis and perinephritic abscesses. One is immediately struck with the high mortality in these severe infections. Out of forty-three such operations, there were four deaths, or 9.3 per cent. There was but one death (from tumor) in the remaining 220, or 0.4 per cent. operations. Of 160 nephrectomies there was but one death. In other words, the mortality occurred where the least surgery was done. This is convincing proof that, if renal infections were investigated earlier and such late complications not allowed, the mortality in kidney surgery should be exceedingly low.

I am convinced, after analyzing my cases, that kidney surgery performed on proper subjects, at the proper time, gives better results with fewer complications and lower mortality than any of the other major operations.

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ABSTRACT OF DISCUSSION

DR. EDWARD L. KEYES, JR., New York: We always need to be encouraged in the detail of our work, and I am particularly pleased to agree with Dr. Caulk's remarks on nephropexy. Too much has been said about the failures of this operation, owing rather to the fact that the operation was performed in unsuitable cases in which pains did not arise from the kidney, or that the surgeon has made too much of an effort to jam the kidney under the ribs, where the compression would persist. I think I have seen two cases of failure from this cause. In one case the patient had been operated on by another man. I operated, placed the kidney where it was more comfortable, saw to it that there was no kinking, as Dr. Caulk insists, and the patient made a good recovery and has had no pain since.

DR. JAMES D. BARNEY, Boston: Dr. Caulk spoke of the importance of the anesthetic. A little more stress might be laid on the importance of local anesthesia in patients who are very ill with pyonephrosis. The patient is frequently in such a condition that it is difficult to give any anesthetic, and in these cases a local procain anesthesia will serve very well for opening the kidney and draining the pus. After a few days the patient will be in such condition that a more complete operation can be done under general anesthesia. In some cases it is possible to do the whole operation under spinal anesthesia. I have had two of those cases, and the patients have done very well when the condition of the chest did not allow the use of ether or nitrous oxid and oxygen.

DR. BENJAMIN S. BARRINGER, New York: Three facts determine a successful outcome to nephrectomy. The first is gas-oxygen anesthesia. The second is the speed of the operation. I imagine the success Dr. Caulk has had is largely because he has operated rapidly. The operator who takes from three fourths to one and one-half hours in a case of tuberculous kidney I think causes the death of the patient in many cases. The third factor is infection, and this applies mainly to tuberculosis. In those cases in which tubercle bacilli and pus are spilled into the wound, the patients have much less opportunity to recover than when we are able to do a clean operation. I well remember a case in which the bacilli were spilled into the kidney wound. The patient did fairly well until the tenth day, when he had a sudden gush of blood and died immediately. The infection had ulcerated through the vena cava.

DR. E. G. CRABTREE, Boston: I wish to emphasize the fact Dr. Caulk brought out, that renal suspension has received and in some clinics now suffers unmerited disfavor. Suspension has been employed in improperly selected cases or has been improperly done. I believe that in properly selected cases the kidney can be suspended with lasting benefit. I now check these cases with pyelograms before the patients leave the hospital. I find that suspension operations are a big help in handling certain types of kidney cases which harbor persistent infections. If these kidneys are suspended in such a way as to remedy the drainage defect there is no question of the value of the procedure.

DR. ABRAHAM HYMAN, New York: Regarding the factors that are responsible for the lowered mortality rate in kidney surgery, I should like to call attention to what I consider an important point. A few years ago Dr. Thomas called attention to the fact that specialism has had more to do with lowering the mortality rate than any other factor. He quoted statistics which showed that the mortality rate for nephrectomy in the hands of general surgeons was 25 per cent., whereas in seven times the number of operations performed by eight noted urologists, the mortality was as low as 7 per cent. In 1912, Dr. Gerster reported a series of 112 nephrectomies, with 21 per cent. mortality. Last year Dr. Beer and I reported 207 nephrectomies with a mortality rate that was not quite 4 per cent. This marked improvement is undoubtedly due to two factors: the general advance in the study of urologic diseases, and the influence of specialism. There can be no question that the man who sees these cases frequently will do better work than the one who does so occasionally. Debatable points may force themselves, some for immediate discussion, on the surgeon: Is is advisable in a specific instance to do a two-stage nephrectomy or attempt removal of a kidney in one operation? Should the nephrectomy be subcapsular or not? Should a stone kidney be removed or drainage done? Is the diminished function of the opposite kidney due to a reflex inhibition, a toxic nephritis, or disease of the organ itself? These and many other questions will frequently arise and are more satisfactorily answered by the man who has had a wide experience in urology.

DR. JOHN R. CAULK, St. Louis: One trick in small pelvic stones is to put the little finger in the pelvis and tap the kidney with the other hand in order to bring the stones down. Another method of getting good results in certain sandy stones consists in doing a complete irrigation at the time of operation, following up with lavage of the pelvis within ten days after operation.

Carrying a Hospital by Caravan.—Dr. Arthur L. Piper five years ago set up a crude grass hut hospital at Kapanga near Musumba, capital of the Alunda tribes of Central Africa, and with the aid of a nurse has been treating the natives that each morning in a line of eighty or more sick and injured wait their turn to be helped. Dr. Piper recently visited America and purchased 101 different kinds of medicines together with all manner of test tubes and laboratory equipment for his hospital. From the end of the Cape-to-Cairo Railroad all luggage will have to be transported on the backs of native carriers for seventeen days in the scorching heat of a tropical sun and constantly surrounded by wild beasts of the jungles. Part of the journey will be through the country where the "sleeping sickness" has wiped out entire villages.

INTESTINAL AND HEPATIC REACTIONS IN ANAPHYLAXIS*

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The anaphylactic reaction has never been adequately analyzed from the physiologic point of view. The picture of the acute shock in any one type of animal is usually dominated by symptoms arising from some one tissue or organ. The attention of serologists has been directed almost exclusively to a study of reactions in this particular tissue, while reactions in other tissues, conceivably of even more fundamental importance, have been largely overlooked.

For example, the picture of the acute anaphylactic reaction in guinea-pigs is dominated by symptoms arising from the pulmonary tissues. Prolonged spasms of the terminal bronchioles are responsible for the dominant respiratory distress. This has directed the attention of investigators almost exclusively to a study of anaphylactic phenomena in smooth-muscle structures. Yet, aside from its dramatic rôle in guinea-pig anaphylaxis, the smooth-muscle cell is probably a relatively unimportant factor in immunity. There is reason to believe that the really important immunity reactions take place in other tissues.

The first attempt to extend anaphylactic studies to the apparently inactive tissues was made in some of the earlier physiologic analyses of anaphylactic phenomena in dogs. The picture of the acute anaphylactic reaction in dogs differs markedly from the picture in guinea-pigs. In dogs there is an almost complete absence of respiratory distress, the dominant features being gastro-intestinal symptoms, followed by a loss of tone of the skeletal muscles, and a more or less complete loss of reflexes. In the fatal type of reaction, the dogs pass into coma, death usually resulting in from thirty minutes to two hours. In the nonfatal type, the animals usually recover from a semicomatose condition in from one to two hours, after which they show few symptoms, except the repeated passage of bloody stools. The bloody diarrhea may continue for several days.

The earliest physiologic analysis of this clinical complex was made in 1909, by Biedl and Kraus.[1] These investigators demonstrated, by kymographic methods, that the canine reaction is accompanied by a sudden and rapid fall in arterial blood pressure. The pressure usually falls within two minutes to less than a third of the normal arterial pressure. In the nonfatal type of the reaction which they studied, the arterial pressure usually remains at this low level for from thirty to sixty minutes, and then gradually increases, reaching approximately normal in from one to two hours. They further showed that this fall in pressure is caused by a general vasodilatation, most marked in the splanchnic area, and that, at the height of the reaction, the vasodilatation cannot be overcome by electrical stimulation of vasoconstrictor nerves. From this observation they concluded that the fundamental cause of the fall in blood pressure is a peripheral vasomotor paralysis.

They attempted to determine the mechanism of this peripheral paralysis by pharmacologic methods. They showed that at the height of the reaction the blood vessels will not react to epinephrin, but will react to barium chlorid. From this they concluded that the vasomotor paralysis is not due to the direct action of an anaphylatoxic agent on the smooth-muscle cells of the blood vessels, but to its action on the peripheral vasoconstrictor nerve endings. They further found that if barium chlorid is administered immediately before the injection of the foreign protein, the resulting vasoconstriction not only prevents the subsequent anaphylactic fall in blood pressure, but also prevents all other manifestations of anaphylactic shock. From this they concluded that the peripheral vasomotor paralysis is the fundamental reaction in canine anaphylaxis, to which all other reactions are secondary.

In the autumn of 1909, I attempted a repetition and extension of this work, in Professor Starling's laboratory, University of London.[2] Our studies were made on adult dogs, sensitized by a single subcutaneous injection with horse serum. The nonfatal type of reaction was obtained. The findings of Biedl and Kraus were in the main confirmed, though we obtained certain variations from the reactions described by them which led us to believe that numerous tissues took part in the reaction, in addition to the single tissue they emphasized.

INTESTINAL REACTIONS IN DOGS

One of the outstanding features in canine anaphylaxis is the development of gastro-intestinal symptoms, especially the repeated passage of bloody stools. Necropsies performed from one to two hours after the shock invariably show the intestinal mucosa hemorrhagic. This hemorrhagic lesion is usually confined to the upper half or two thirds of the small intestine, but occasionally extends as far as the ileocecal valve. The lesion is always most marked in the duodenum. On account of the similarity between this lesion and the intestinal lesions produced by snake venom and certain bacterial toxins, the question arose as to whether or not the hemorrhagic lesion is a primary effect of a circulating anaphylatoxic agent, or is merely a secondary phenomenon of relatively little interest.

Plethysmographic tracings with isolated intestinal loops show a marked vasodilatation during the reaction, conceivably of the peripheral neuroparalytic type. This vasodilatation is accompanied by loss of tone of the intestinal musculature, and a cessation of peristaltic movements. We further found that if the intestinal contents are removed by perfusion with physiologic sodium chlorid solution immediately before the injection of the foreign protein, and if the subsequent entrance of bile, pancreatic juice and stomach contents is prevented by ligatures, the hemorrhagic intestinal lesion does not develop. From this we concluded that the intestinal lesion is not due to the direct action of a circulating anaphylatoxin, but is due to the local action of intestinal enzymes, favored by the reduced blood flow and reduced peristalsis.

* Presented before the Washington University Medical Society, St. Louis, March 15, 1921.

* Read before the Section on Pathology and Physiology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Biedl, A., and Kraus, R. Experimentelle Studien über Anaphylaxie, Wien. klin. Wchnschr. **22**: 363, 1909; Die experimentelle Analyse der anaphylaktischen Vergiftung, Handb. d. Techn. u. Methodik d. Immunitätsforsch. Ergnzgab. **1**: 259, 1911.

2. Manwaring, W. H.: Der physiologische Mechanismus der anaphylaktischen Shocks, Ztschr. f. Immunitätsforsch. u. exper. Therap. **1**: 1911; abstr. Bull. Johns Hopkins Hosp. **21**: 275, 1910.

Histologic study of the hemorrhagic areas shows erosions or loss of epithelium, particularly marked on the ends of the villi, with necrotic changes occasionally extending into the deeper tissues. This tends to confirm our conclusion that the lesion is due to the digestive action by the intestinal contents, and is of little or no theoretical interest.

HEPATIC REACTION IN DOGS

A second constant necropsy finding in dogs is a marked swelling and congestion of the liver. Our attention was therefore turned to possible reactions in hepatic tissues. That the liver is thrown into increased functional activity during the anaphylactic reaction is indicated by the increased flow and increased specific gravity of the lymph from the thoracic duct which accompanies and follows the reaction.

In order to study this increased hepatic activity it was necessary to devise methods for the rapid exclusion of the liver from the rest of the circulation. The time at our disposal was too short to resort to the Eck fistula. As a preliminary to this exclusion it was shown that the blood of sensitized dogs can be rendered noncoagulable, either by repeated defibrination of withdrawn samples, or by the intravenous injection of herudin, without apparent interference with the subsequent anaphylactic reaction. Our studies in liver exclusion were made on herudinized dogs. After herudinization, a T-cannula was placed in the portal vein, one end of which was connected by a clamped paraffined rubber tube to the external jugular vein. By means of ligature sticks, unclosed ligatures were then placed about the portal vein, hepatic artery and vena cava, immediately above and below the liver. The abdomen was then closed. By opening the jugular clamp and closing the hepatic ligatures, the liver could be excluded from the circulation. On reversing the process, the normal liver circulation could be restored.

It was found that complete exclusion of the liver by this method prevents the anaphylactic reaction in sensitized dogs. During the period of hepatic exclusion, the foreign protein can be injected intravenously, with the production of no changes in arterial blood pressure. From this we concluded that the extrahepatic tissues of sensitized dogs do not differ in their reactions to specific foreign proteins from the extrahepatic tissues of normal dogs. The fact should be emphasized, however, that we were working with mildly sensitized adult dogs, giving the nonfatal type of reaction. Our work, of course, does not rule out the possibility of recognizable extrahepatic reactions taking place in more highly sensitized young dogs or puppies. On releasing the ligatures, allowing the blood once more to pass through the liver, a prompt typical anaphylactic fall in blood pressure is produced. It is evident from these tests that the cooperation of the liver is in some way essential to the production of the nonfatal type of anaphylactic reaction in dogs.

Our conclusion that the liver is an essential organ in canine anaphylaxis was received at the time with considerable skepticism. The conclusion, however, has been fully confirmed by subsequent workers. Thus, in 1911, Voegtlin and Bernheim,[3] and in 1914, Denecke[4] obtained identical results with Eck fistula dogs. Confirmatory evidence was also furnished by Weil and Eggleston[5] in 1916. This latter confirmation is of particular interest, since Weil and Eggleston were working with the fatal type of anaphylactic reaction, the type that kills dogs in as short a time as thirty minutes.

NATURE OF THE HEPATIC COOPERATION

Two hypotheses have been put forward to account for this necessary hepatic cooperation in canine anaphylaxis. One hypothesis, recently suggested by Simons[6] and championed by Wells,[7] assumes that the initial cellular reaction is an anaphylactic spasm of the hepatic veins. Such a local vascular spasm would readily account for the hepatic engorgement, splanchnic congestion and low systemic blood pressure. Simon's hypothesis, however, has not yet been supported by experimental evidence. No data are as yet available indicating that mechanical occlusion of the hepatic veins does take place. Moreover, the hypothesis is contrary to our observations, since we were unable to detect primary vasomotor changes in extrahepatic blood vessels. The hypothesis would necessitate the assumption that the hepatic blood vessels acquire properties during sensitization that are not acquired by the blood vessels of other tissues. It appears to me that this assumption is contrary to the probabilities.

The only hypothesis thus far supported by experimental evidence is the hypothesis we originally put forward in 1910. According to this conception, the initial cellular reaction in canine anaphylaxis is a biochemical reaction in the hepatic parenchyma. This parenchymatous reaction presumably consists of an explosive formation or liberation of vasodilator substances. These vasodilator substances would readily account for the local dilatation of the hepatic artery, with the resulting increased intrahepatic tissue pressure and passive congestion of the splanchnic area. The vasodilator substances might also conceivably account for the systemic vasodilation, loss of reflexes, and relaxation and loss of peristalsis in the intestine.

Our hypothesis of the explosive formation or liberation of vasodilator substances by the hepatic parenchyma as the initial cellular reaction in canine anaphylaxis has received support from subsequent workers. Thus, in 1911, Nolf[8] studied the changes in the coagulation of blood in canine anaphylaxis. He showed that mixtures of normal blood and 2 per cent. foreign serum can be perfused through the liver of a normal dog without showing a decrease in the promptness and firmness of its subsequent coagulation. If, however, a mixture of anaphylactic blood and 2 per cent. foreign serum is perfused through an anaphylactic liver, the blood mixture completely loses its coagulating power. This observation was subsequently confirmed by Weil and Eggleston.[9] Nolf showed this loss of coagulation due to the explosive formation or liberation of antithrombic substances by the anaphylactic liver.

3. Voegtlin, C., and Bernheim, B. N.: The Liver in Its Relation to Anaphylaxis, J. Pharmacol. & Exper. Therap. **2**: 507, 1911.

4. Denecke, G.: Ueber die Bedeutung der Leber für die anaphylaktische Reaktion beim Hunde, Ztschr. f. Immunitätsforsch. u. exper. Therap. **22**: 501, 1914.

5. Weil, R., and Eggleston, C.: Anaphylaxis in Dogs, a Study of the Liver in Shock and Peptone Poisoning, J. Immunol. **2**: 525, 1916.

6. Simons, J. P.: The Fundamental Physiologic Reaction in Anaphylactic and Peptone Shock, J. A. M. A. **73**: 1437 (Nov. 8) 1919.

7. Wells, W. G.: The Present Status of the Problems of Anaphylaxis, Phys. Rev. **1**: 44, 1921.

8. Nolf, P.: La composition proteique du milieu humoral. Troisième mémoire. De l'anaphylaxie, Arch. internat. de physiol. **10**: 37, 1910.

9. Weil, R., and Eggleston, C.: Anaphylactic Reactions in Isolated Dogs' Liver, J. Immunol. **2**: 571, 1916.

In 1916, Weil and Eggleston [9] attempted to test our hypothesis by withdrawing blood from dogs dying from anaphylactic shock and introducing this blood intravenously into anesthetized normal dogs. They obtained nontoxic symptoms, however, that were evident half an hour later, after the normal dogs had recovered from the anesthetic. Unfortunately, they did not use kymographic methods, and so could not have detected a nonfatal type of anaphylactic reaction the symptoms of which might be readily masked by the anesthetic. Their negative result, therefore, cannot be taken as an argument against our view.

HEPATIC REACTIONS IN GUINEA-PIGS

This line of work was interrupted at this stage for a number of years, during which time my attention was directed to problems of quite a different nature. The investigation was resumed, however, in 1915, in the Laboratory of Experimental Pathology, Stanford University, Calif. Our attention was first directed to a possible confirmation of these results on guinea-pigs. To study possible hepatic reactions in guinea-pigs, it was necessary to select some smooth-muscle structure as a test tissue. The isolated lungs were finally selected as the most satisfactory reacting index for this purpose. These lungs were studied by perfusion methods.[10]

If a cannula is placed in the pulmonary artery, and the isolated anaphylactic lungs are perfused with specific foreign protein, or with foreign protein-blood mixtures, a typical anaphylactic pulmonary response is produced. This reaction consists of two factors. First, there is a spasmodic contraction of the bronchioles, preventing expansion and collapse of the lungs under artificial respiration. Second, there is usually a distinct spasmodic constriction of the pulmonary blood vessels,[11] indicated by a reduction in the rate of flow of the perfusion fluid. That this reduction is due to a real vasoconstriction, and is not merely an apparent vasoconstriction secondary to the bronchial spasm, is indicated by the fact that similar vasoconstrictions can be demonstrated in extrapulmonary tissues.

If a mixture of defibrinated anaphylactic blood and specific foreign protein is repeatedly passed, by perfusion methods, through the isolated normal guinea-pig liver, and then tested on isolated anaphylactic lungs, a prompt, typical, anaphylactic response is produced. The normal liver, therefore, does not appreciably decrease the anaphylactogenic power of the specific protein-blood mixture. If, however, a similar mixture is repeatedly perfused through an anaphylactic liver, the mixture not only completely loses its power to call forth the anaphylactic response in isolated lungs, but acquires a new power, that of producing the opposite phenomena; a bronchial relaxation and vasodilation.[12]

Just what changes are produced in the protein-blood mixture by the hepatic tissues, we are not as yet prepared to state. The mere removal or neutralization of an anaphylatoxin, however, would not account for our observed results. There is evidently, besides this possible removal, the addition to the blood mixture of an antianaphylactic, or smooth-muscle relaxing substance.

The hepatic reaction in guinea-pigs, therefore, is apparently identical with the hepatic reaction in dogs. In both animals there is evidence of an explosive formation or liberation of smooth-muscle relaxing substances by the hepatic parenchyma. The reactions in the two animals differ, however, in that the explosive formation or liberation of smooth-muscle relaxing substances is the underlying cause of the clinical symptoms in dogs. In guinea-pigs these substances act as an antianaphylactic mechanism. They hasten recovery from the initial bronchial and vascular spasms, or tend to prevent the spasms, if the protein injections are made by way of the mesenteric veins. This conclusion is in line with the well-known fact that unusually large doses of foreign protein are necessary to produce the anaphylactic shock in sensitized guinea-pigs, if the injections are made by way of the mesenteric veins.

Confirmatory evidence of this biochemical hepatic reaction is furnished by the observations of Pick and Hashimoto [13] on variations in autolysis of normal and anaphylactic liver emulsions. If a small amount of specific foreign protein is added to a living emulsion of normal guinea-pig liver cells, the protein brings about no appreciable change in the rate and degree of subsequent autolysis. The addition of a similar amount of specific foreign protein to a living emulsion of anaphylactic liver cells, however, reduces or even completely abolishes subsequent autolysis. Conceivably, there is an explosive formation or liberation of anti-enzymic substances by the anaphylactic liver cells.

NATURE OF THE SMOOTH-MUSCLE RELAXING SUBSTANCES

Just what these smooth-muscle relaxing substances are, we are not yet prepared to state. We have no evidence that the substances are at all related to antibodies. Furthermore, we have evidence that the substances do not consist of cleavage products of the foreign protein. Parallel quantitative titrations of protein-blood mixtures by precipitation methods, before and after repeated perfusions through the isolated anaphylactic liver, show no decrease in the amount of foreign protein as a result of the liver passage, and no qualitative change in the protein that can be detected by precipitative tests.[14]

PRIMARY HUMORAL REACTION

A question of interest to immunologists is whether or not this hepatic reaction is a primary reaction to the specific foreign protein, or is secondary to a preceding serum reaction. There is evidence in canine anaphylaxis that a serum reaction precedes the hepatic reaction. Thus, in the liver exclusion experiments, if the protein-blood mixture is allowed to circulate for five minutes through the extrahepatic tissues, the blood completely loses its power to call forth the hepatic reaction on subsequent release of the hepatic ligatures. There is no demonstrable qualitative or quantitative change in the foreign protein during this extrahepatic circulation. One of the easiest explanations of this observation would be to assume a preliminary serum

10. Manwaring, W. H., and Kusama, Y.: Analysis of the Anaphylactic and Immune Reactions by Means of Isolated Guinea-Pig Lungs, J. Immunol. **2**: 157, 1917.
11. Manwaring, W. H., and Crowe, H. E.: Types of Anaphylactic Reaction, Proc. Soc. Exper. Biol. & Med. **14**: 173, 1916.
12. Manwaring, W. H., and Crowe, H. E.: Rôle of Hepatic Tissues in the Acute Anaphylactic Reaction, J. Immunol. **2**: 517, 1916.
13. Pick, E. P., and Hashimoto, M.: Sensibilisierung und anaphylaktischer Shock der überlebenden meerschweinchen Leber, Ztschr. f. Immunitätsforsch. u. exper. Therap. **21**: 237, 1914.
14. Manwaring, W. H.; Kusama, Y., and Crowe, H. E.: Fate of Foreign Protein in the Acute Anaphylactic Reaction, J. Immunol. **2**: 511, 1916.

reaction, with the production of substances (anaphylatoxins) easily destroyed, neutralized, removed or otherwise rendered inoperative by the extrahepatic tissues.

SUMMARY AND CONCLUSIONS

1. The anaphylactic reaction in guinea-pigs and dogs is characterized by the explosive formation or liberation of smooth-muscle relaxing substances by the hepatic parenchyma.

2. These substances are directly responsible for the hepatic vasodilation in dogs, and either directly or indirectly responsible for the general vasodilatation,

3. In guinea-pigs, these substances act as an anti-anaphylactic mechanism, tending to overcome the initial bronchial and vascular spasms or to prevent these spasms if the protein injections are made by way of the mesenteric veins.

4. The chemical nature of these smooth-muscle relaxing substances is unknown. There is no reason at present to believe that they are antibodies. There is evidence that they are not cleavage products of the specific foreign protein.

5. In dogs there is evidence that the hepatic reaction is secondary to a preliminary serum reaction.

6. The hemorrhagic intestinal lesion in dogs is a secondary phenomenon, due to the local action of intestinal enzymes.

ABSTRACT OF DISCUSSION

DR. HOWARD T. KARSNER, Cleveland: It appears to be true that the anaphylactic liver has some influence on the fluid that passes through it. Dr. Manwaring said he has no evidence that it is specific for the liver as such. It appears to me that Dr. Manwaring's comments concerning the work of Simons are not borne out by what he said subsequently. Manwaring brings out the fact that the portal vein of the dog is extremely well supplied with smooth muscle; he follows that by saying that if this smooth muscle operates during anaphylactic shock, it does so as an isolated example. It is not in harmony with the activities of smooth muscle otherwise, whereas, subsequently he points out, at least primarily, that the smooth muscle of the pulmonary vessels and small bronchi acts in the same way. I think that the main point in Simon's theory is interconstriction of bronchi and pulmonary vessels. The vascular reaction appears particularly well in the rabbit. We know that it appears in the excised uterus and excised intestine. Even though it be evanescent, nevertheless it does operate. It might very well operate in regard to the tissue of the hepatic vein. The thing that disturbed me most in regard to Simon's demonstration is the work of Jackson and a collaborator in Cincinnati, who observed in the dog, through a window in the chest, that there is pulmonary constriction. Of course, even though that be true, it does not exclude the possibility of constriction of the hepatic vessels.

DR. W. H. MANWARING, Stanford University, Calif.: The main confusion that has arisen in regard to the anaphylactic reaction in dogs is due to the fact that in dogs there are two types of this phenomenon. First, there is the mild or non-fatal type originally studied by Biedl and Kraus, from which the dogs invariably recover in from one to two hours. Second, there is the fatal type, the type studied by Richard Weil, requiring a special method of sensitization. In the nonfatal type of the shock we have thus far been unable to demonstrate primary vasoconstriction in the extrahepatic blood vessels. This conclusion, of course, does not rule out the probability that in more highly sensitized dogs giving the fatal type of reaction we may have primary extrahepatic reactions. For that reason we do not believe in the existence of primary vasoconstrictive blood vessels, since there is no reason at present to believe that the hepatic blood vessels acquire properties during sensitization not acquired by the blood vessels in extrahepatic tissues. It is probable that in the highly sensitized dogs we have a combination of several primary reactions, the same as we have a combination of at least two primary reactions in the guinea-pig.

A NEW NONOPERATIVE TECHNIC FOR REMOVAL OF IMPACTED CALCULUS IN URETHRA *

P. A. JACOBS, M.D.
CLEVELAND

Impacted calculus in the urethra is a comparatively rare condition. The frequency of its occurrence is not known on account of insufficient statistical data.

The presence of calculus in the urethra produces inflammation, edema and proliferation of the adjacent structures; this tissue reaction locks the stone in place and makes dislodging it impossible except by mechanical manipulations (Fig. 1).

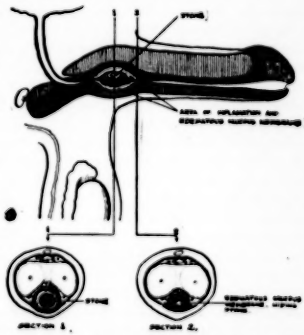

Fig. 1.—Calculus in urethra, producing inflammation, edema and proliferation of adjacent structures.

In order that urinary complications and sequelae may be avoided, calculus in the urethra calls for immediate removal. Many methods have been advocated, the most important of which are: inserting forceps into the urethra and attempting to extract or crush the stone; the use of spoon shaped instruments for the purpose of lifting the stone out; pushing the stone into the bladder and performing a cystotomy; urethrotomy and removal of the stone through the incision.

It can readily be seen that any of these methods traumatize the urethra to the extent that infection, scar formation and urinary fistula may result. The technic here described does not injure the urethra, is easily performed, either with or without the aid of an endoscopic tube, and does not require an anesthetic.

From the standpoint of urethral obstruction, impacted calculus presents the same mechanical problem as a filiform stricture. Therefore (Fig. 2), a number of olive tip whalebone bougies are inserted into the urethra up to the point of obstruction. The same preparatory technic as in all urethral instrumentations having been observed, one by one the

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

bougies are manipulated so that they pass a little beyond the stone and surround it (Fig. 3). When the bougies are in the described position, they are all grasped together and pulled out rather firmly and quickly. From fifteen to twenty bougies are necessary to surround the stone properly.

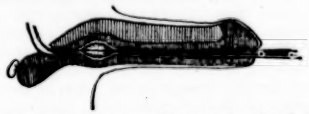

Fig. 2.—Bougies inserted into urethra up to the point of obstruction.

The mechanics of this technic is rather simple when one considers the fact that the lumen of the bougies in position is practically obliterated at the olive tip end; and when they are pulled in the manner described, the calculus is caught as if in a cradle and comes along when the bougies are withdrawn (Fig. 4). Moreover, the calculus is surrounded with bougies which act as a covering to the rough surface, and prevent injury to the mucosa during the procedure.

REPORT OF CASE

A man, aged 39, admitted to the clinic, March 9, 1920, complained of urethral discharge, burning pain during micturition, hematuria and marked frequency. The past history was unimportant except for an attack of severe pain in the right lower abdomen about ten months before, which came on suddenly and lasted about two days. This condition was diagnosed appendicitis by his physician. No operation was performed, and no stones were passed.

Physical examination was negative except for some tenderness on deep pressure above the pubes, and a seropurulent discharge at the meatus. Smears were negative for gonococci; two glass test showed both urines containing an enormous amount of pus and many red blood cells.

The urethra was irrigated with permanganate solution 1:5,000; diagnosis was not made at this time.

March 11, there was no urethral discharge or hematuria; frequency was diminished. The patient stated that very often the urinary stream suddenly became smaller and stopped

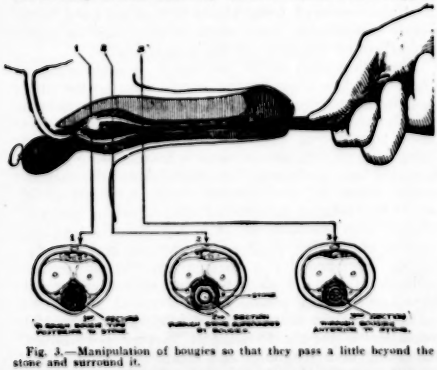

Fig. 3.—Manipulation of bougies so that they pass a little beyond the stone and surround it.

before he had finished. A provisional diagnosis of vesical calculus, vesical tumor was made.

An attempt at cystoscopy was unsuccessful on account of obstruction at the penoscrotal junction. Sounds and bougies met the same obstruction. A urethroscope was then inserted as far as the obstruction; no scar tissue or lumen could be seen on account of the marked edema and inflammation of the mucosa at this point. The presence of stone was then made out by palpation, a little beyond the penoscrotal junction, and was removed by the method described above, with practically no discomfort to the patient. Only a few drops of blood were noticed after the stone was removed.

March 16, the patient was very much improved; had had no pain or frequency, and urinated freely. The urine still contained a large amount of pus. Permanganate irrigation was given, and he was told to return for cystoscopy. He did not return, however, for further observation.

Being somewhat skeptical about the ease with which the calculus was removed in this case, I proceeded to check up the technic on the cadaver. Three male cadavers were used for the experiments; three different stones were inserted into each urethra at different times, making nine experiments in all; and in each one the stone was brought out with the bougies.

Fig. 4.—Withdrawal of bougies with calculus.

If calculus in the urethra is complicated by the presence of organic stricture, the efficacy of this procedure would depend on the caliber and resilience of the stricture; however, the method should at least be tried.

802 Rose Building.

ABSTRACT OF DISCUSSION

DR. EDWIN BEER, New York: Dr. Jacobs is to be congratulated on giving us this ingenious method. As he says himself, he was a little skeptical as to whether it would work with regularity. I am still a little skeptical as to whether it will work regularly, but I think it should be tried rather than the cutting operation. Whether one has twelve or fifteen whalebone bougies in his office when the particular patient presents himself will determine largely how many cases are so treated; but I think this very simple operation should be of great help. I have been interested in trying to do the same thing in ureteral stones. In the ureter I have never been able to pass more than six of the whalebone bougies, and have never been able to grasp the stone in the ureter so that it could be delivered through the ureteral meatus into the bladder. While I believe the problem is far from simple, I think if this method can succeed in the urethra it should also in the ureter. The difficulty will be to get a complete encirclement of the stone in either case. I have been using these bougies for several years.

DR. A. L. WOLBARST, New York: The procedure described by Dr. Jacobs is an excellent one if it can be carried out. Some months ago a well known general surgeon had attempted to extract a stone from the urethra. He passed a long pair of forceps down into the urethra for a distance of about 5 inches, grasped the stone and yanked it out with all the force he could muster. The stone was rough and jagged. The mucous membrane naturally was torn into shreds. Some weeks later this patient came to my clinic with a urethra full of scar tissue that made urination almost impossible. If the stone is a small one, the method proposed by Dr. Jacobs ought to be successful in forming a sort of track or groove along which the stone can move without doing damage to the urethral mucosa.

DR. A. J. CROWELL, Charlotte, N. C.: Some time ago I removed a very large ureteral stone and left the patient in my office while I went to lunch. When I returned I found the stone impacted in the urethra and the patient in great

pain, endeavoring to pass his urine. One of my associates had been trying to remove it under local anesthesia and failed. I bent the points of two metallic letter openers and, slipping one on each side of the stone in the urethra, I pulled it out very easily, under general anesthesia.

Dr. Philip A. Jacobs, Cleveland: The technic of this procedure is very simple, for reasons which have been described. Moreover, you have one hand free to guide you in surrounding the stone with the bougies, thereby overcoming the difficulties which Dr. Beer meets in his ureteral work. Dr. Wolbarst's suggestion that one might get the filiforms around the stone and then try to get an instrument in is, I think, a bad procedure as it defeats the purpose of the technic. If you pass the filiforms as I have described, there is no necessity for an instrument, and what is more, there is no room for it. In the case described by Dr. Crowell, it is very probable that the stone would have passed as most of them no doubt do. There is one type of case in which this technic will not be successful, and that is when the stone is lodged in a diverticulum, making it impossible to surround the stone with the filiforms.

THE ILIOSACRAL JOINT*

H. R. ALLEN, M.D.
INDIANAPOLIS

Some years ago, while working in comparative anatomy, I carefully observed iliosacral joints in a wide range of quadrupeds. The purpose of the observation was to become more familiar with the mechanical significance involved in the evolution and development of these joints, with special reference to their form and function. The early suggestions in primitive evolution may not interest us as much as the completely developed joints: joints in creatures whose habits, like our own, necessitated extensive traveling over hard, dry land. So by excluding all amphibious creatures and all quadrupedal birds and reptiles and mammals that fly as well as walk over land, we have left among living and fossilized creatures several thousand examples with direct bearing on our own iliosacral joints.

If we look backward, from the last born child of today into those primitive days when the ancient dimetrodon trod the earth, we shall find in common with all of these creatures a pelvic girdle composed of three osseous segments, each of which has three articulating areas.[1] The sacrum is always broader ventrally than dorsally, resembling an inverted keystone. It never rests on the ilia, as one bone on another bone, but is always suspended from the ilia by dense fibrous tissues. So when heavy burdens are imposed upon the spine, the sacral wedge tends to descend between the ilia, thus permitting the entire pelvic girdle to tighten up to its limit of endurance.

The iliosacral joints are too nearly vertical to be construed as weight-bearing areas. In fact, they never bear weight unless the animal lies on its side. These joints are at all times subjected to lateral compression. They are composed of two zones. The central or articulating zone is a smooth, though wavelike, area surrounded by a zone of rough bone for fibrous tissue attachments. The two zones are not concentric. The normal range of motion may be compared with the motion existing between the external and middle cuneiform bones of the tarsus. The relative direction of movement for the sacrum is backward if the ilium is forward, or downward if the other is upward, and always equal and opposite in direction for rotation, which movement is more likely to be about a traveling center than about a fixed point. The separation of sacrum from ilium occurs only during the process of dislocation and is not a true joint motion. The sacrum is always the base of the spine, and the iliosacral joints are always the bases of the two ilia.

The ilia start from the iliosacral joints as their bases, and proceed on their curved course until they converge at the pubes. They are powerful and rigid levers and have much to do with the stability and instability of the joints at their bases. For example, if the right abdominal rectus and the left gracilis and adductors contract violently at the same time, the pubes will be pulled out of symmetry. The right side of the pubes will be pulled up and the left side will be pulled down, which means that the long lever arms of the ilia have created motion in one or both iliosacral joints commensurate with that exhibited at the pubes. Conversely, if a roentgenogram reveals lack of pubic symmetry, it also suggests manipulation of these levers as an aid toward reduction. These powerful levers are also accurate indicators for both kind and degree of dislocation or subluxation, since they multiply or magnify, at the pubes, very slight displacements at their bases.

Ages ago, when our early ancestors decided in favor of bipedism as opposed to quadrupedism, they were so well pleased with the horizontoid axis of the sacrum that they let it remain almost in its original position; but they developed such a marked lumbar curve that the fore legs left the ground completely. By doing so, they not only deprived the forward end of the spine of its original support, but they actually added the weight of the fore legs to the burden of the iliosacral joints. Among other "disadvantages of the upright position," true mechanical estimates for all strains received from above downward have been greatly complicated, since these strains must be computed through the torus of the lumbar curve.

Concerning erect spinal posture, it is interesting to note that, when a quadruped stands erect on the hind legs, the lumbar vertebrae and the axis of the sacrum are almost vertical. The same vertical posture is almost equally true when a human being is in an erect sitting posture. However, when a human being stands up on the legs, the lumbar vertebrae assume the characteristic curve and the sacrum retains its horizontoid axis. The relative amount of discomfort to patients afflicted with lumbosacral pain, experienced between standing and sitting, suggests its own postural remedy. Having digressed for a moment on the subject of lumbosacral pains, I shall continue with the original subject of iliosacral joints.

The purpose in submitting the foregoing mechanical properties is merely to suggest further possibilities concerning both diagnosis and treatment. Sometimes present methods of diagnosis fail. The history of the case and accident are not always dependable. The excellent method of flexing the thigh (with knee unbent) on the abdomen may fail, because iliosacral disorder is only one of several causes for limiting this type flexion.

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1. I have referred to the pubes as an articulating area, first, because it is not ankylosed, and secondly, because two converging bones, with intervening cartilage, bound together with fibrous tissues, move with reference to each other; and, with iliosacral joints, they share motion both in kind and in degree.

A roentgenogram of a suspected joint may fail to afford convincing evidence, because it may not show any abnormality at all. I therefore make the suggestion that the entire pelvis be shown on each picture; then study the pubes where the long indicators of iliosacral displacements may be recorded on a magnified scale. I would further suggest that the picture be taken with reference to bringing out lack of pubic symmetry. To demonstrate the result of pelvic girdle strain, have the patient stand on one leg for one picture and on the other leg for the other picture.

In regard to treatment, we are to remember that we have to deal with a body ring, composed of three bony segments jointed together at three places. Each of the bony segments has its own individual lever projections. By grasping the crest of the ilium or the pubes or the ischial tuberosity on each side of the body, an opportunity is afforded to exert compression or traction or rotation as an aid to other manipulations in the reduction of fractures, as well as in the reduction of dislocations. Through the rectum, a firm grip can be taken on the lower end of the sacrum. By properly employing the manipulation just mentioned for expanding and maneuvering the segments of the pelvic girdle, we may simplify the reduction of difficult cases and avoid some open operations.

ABSTRACT OF DISCUSSION

DR. R. W. KNOX, Houston, Texas: I do not believe that the upright posture of man may yet result in a menace to the human race. On the contrary, it is fair to presume that the troubles of the lumbosacral region are not so great now as in the earlier history of the race when the strong muscular and ligamentous attachments were not so well adapted as at present for holding the body in an erect position. In fact, the mechanism of the spine seems well adapted not only for the complex movements of the body, but for its support as well. Like all machinery, whether organic or inorganic, it may suffer from overloading or defects in material. The sagging of the lumbar vertebrae due to the loose sacral joint is a frequent cause for trouble requiring rest and mechanical support for relief. Another frequent and serious cause for trouble in this region is the elongated or hypertrophied condition of the transverse processes of the fifth lumbar vertebrae. When these processes impinge on the ilium or sacral joint, a painful bursa may form at the point of contact and serious invalidism may result. Nature, at times, attempts relief by ankylosing the last vertebrae to the pelvic bones. When this occurs, the subject walks with a characteristic stiffness of gait.

DR. C. L. LOWMAN, Los Angeles: From the standpoint of treatment, I should like to call attention to the legs and feet in relation to sacro-iliac conditions. When the arches are relaxed, there is inward rotation of the leg with strain, stretching and tension on the external rotators. The pyriformis muscle is the only muscle in the body that goes crossways. The inward rotation of the legs gives constant strain, and rotating the thighs outward, as in the regular rotation exercise for foot treatment, tones up the external rotators. We order a movement that is one of the chief toning up exercises for the pyriformis muscle. The patient lies prone and rotates the leg outward against the resistance of an assistant, who grasps the heels and holds the foot in the toe-in position against the patient's resistance. This affects the only group of muscles that has any stabilizing effect on the sacro-iliac joints laterally.

DR. H. R. ALLEN, Indianapolis: Parts of the discussion have contributed very much to the paper by way of elucidating the various points I endeavored to express in the least number of words and to the elucidation I owe much gratitude.

FRACTURE OF THE SPINE OF THE TIBIA *

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Orthopedic Surgeon, St. Clair Hospital
CLEVELAND

Fracture of the spine of the tibia is a rare type of intracapsular fracture of the knee-joint. Often associated with this injury there is found rupture of either one or both crucial ligaments. Investigation has shown that rupture of the crucial ligament may exist with fracture of the tibial spine, or fracture of the spine of the tibia may exist without rupture of the crucial ligaments.

Hogarth Pringle [1] published a report in 1907 on a case of rupture of the crucial ligaments with avulsion of the tibial spine. In this case he sutured the spine back into position. This is the first recorded operation for this type of injury. In 1888, Sir Rickman Godlee described the lesion that he had found in a leg that was amputated by Erichson in 1873. The injury in this instance had been caused by the passage of a cart-wheel over the leg.

Briefly, I will describe the anatomy of the superior articular surface of the tibia. On the upper surface of the tibia two articular facets extend upward in the middle of the joint, forming the two tubercles of the spine of the tibia. Along the summit of the spine runs a groove anteroposteriorly. This groove opens up at the anterior and posterior ends into the V-shaped intercondyloid fossa. The anterior V-shaped intercondyloid fossa furnishes attachment to the anterior portion of the semilunar cartilage and for the anterior crucial ligament. The posterior fossa offers attachment to the posterior horn of the semilunar cartilage and the posterior crucial ligament. Thus the anterior crucial ligament passes from the inner tubercle of the spine upward, backward and outward, and is inserted into the inner aspect of the external condyle of the femur. The posterior crucial ligament passes upward, forward and inward to be attached to the interior portion of the internal condyle. It lies behind the anterior crucial ligament.

It follows, therefore, that: 1. When the knee is fully extended, the anterior crucial ligament is tense and prevents displacement of the tibia forward on the femur. 2. When the knee is fully flexed, the posterior crucial ligament is tense and prevents backward displacement of the tibia on the femur. 3. Both ligaments prohibit inward rotation of the tibia.

Bearing these points in mind, one may diagnose an injury of the crucial ligaments quite readily; e. g., if in the extended position the tibia cannot be displaced forward, it may be assumed that the anterior ligament is intact. If in full flexion the tibia cannot be displaced backward, the posterior ligament may be presumed to be intact. The most constant sign of fracture of the spine of the tibia is an obstruction to full extension of the leg.

Avulsion of the tibial spine is practically always produced by violent traction on the crucial ligaments. It seems logical, therefore, to assume that extreme vio-

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Pringle, J. H.: Ann. Surg. 46:169 (Aug.) 1907.

lence is necessary to rupture the crucial ligaments. Such violence would in all probability produce complete dislocation of the knee-joint.

In a personal observation of about 1,000 fractures during the past ten years, I have observed three cases of fracture of the spine of the tibia. The first was seen in the fall of 1913, the second in the fall of 1920, and the third in April, 1921.

LITERATURE

Prior to 1873 but three cases of fracture of the tibial spine are described in the literature. In each case the fracture was not recognized until after amputation or at postmortem examination. As stated above, Pringle reported the first case in American literature in 1907. Sir Robert Jones [2] reported fourteen cases of fracture of the tibial spine. He classifies three types of this injury: (1) avulsion of the tibial spine or its internal tubercle; (2) fracture of the external tubercle of the spine, and (3) injury to the tibial spine combined with fracture of a tuberosity of the tibia. In 1915 I [3] reported a case of fracture of the tibial spine, which I had seen in 1913. This is the second case reported in American literature. While, of course, this type of injury is rare, there surely must have been a number of cases seen by others during the eight years that have elapsed between the appearance of the articles by Pringle and myself. Sever,[4] in 1916, reported a case in a man, aged 59. Smith,[5] in 1918, reported a case in a British officer. Jones [6] reported a case in a man, aged 47. He also reports in the same article the roentgenographic findings in seven other cases.

MECHANICS PRODUCING THE INJURY

I am of the opinion that the tibial spine is practically always fractured by indirect violence, and that fracture or avulsion of the spine is due to sudden and powerful traction on one or both crucial ligaments, but usually the posterior.

The tibial spine is so situated and protected by nature that it is practically impregnable to direct assault.

In my three cases the history will show that a powerful traction on the crucial ligaments produced the injury in each case. The violence is applied while the knee is flexed and abducted and usually externally rotated. This injury may also occur if the knee becomes suddenly and powerfully hyperextended, as in Case 3.

REPORT OF CASES

CASE 1.—A white man, aged 19, seen in the fall of 1913, three weeks previously had jumped off a wagon, and in landing on the ground his leg suddenly flexed under him and he fell, striking the knee against the curbstone. He was unable to rise or extend the knee because of severe pain in the joint. The leg became greatly swollen and painful, and two roentgenograms were said to be negative. At the end of six days, he was discharged from the hospital. Pain and stiffness persisted and he later came under my observation.[5] The knee was painful, swollen and contained free fluid. A roentgenogram disclosed a complete transverse fracture of the tibial spine. A plaster cast was applied with the leg in complete extension for six weeks, at which time it was removed and active and passive motion instituted. He made a complete recovery with normal function. In this case, the force was applied by way of the posterior crucial ligament.

CASE 2.—A white woman, aged 50, stumbled while going down stairs. In falling, the knee was flexed and strongly abducted. There was a violent pain in the knee, and the patient could not straighten the leg. She said that her knee was dislocated outward and was pulled into place by her husband. She was seen by me several days later. The knee was greatly swollen, discolored and quite painful, and was fully extended. There were no symptoms of crucial ligament injury, but the tibia could be abducted on the femur, thus showing a rupture of the internal lateral ligament of the knee. The roentgen-ray revealed an avulsion of the spine of the tibia, together with a compression fracture of the outer tuberosity of the tibia. In this case, the force to the tibial spine was transmitted by way of the posterior crucial ligament.

CASE 3.—A white man, aged 25, slipped on an icy pavement while stepping out of his wagon onto a platform. He struck the knee cap forcibly against the edge of the platform, and instead of the knee becoming suddenly flexed as is usually the case, it became violently hyperextended. There was violent pain in the popliteal space, and the patient said that he felt the "cords" in the popliteal space give way. The knee became discolored and greatly swollen. He was treated by his family physician by the application of heat and massage. He came under my observation about four months after the injury. The chief complaint was that of locking of the knee accompanied by pain. The knee usually unlocked itself within fifteen or twenty minutes. Examination revealed the fact that flexion and extension of the knee was free except to within a few degrees of the normal range of motion. He complained especially of tenderness over the external semilunar cartilage. The roentgen-ray revealed a crack through the spine of the tibia, the fragment at this time not being separated from its bed. The locking in this case was due, in all probability, to the deranged semilunar cartilage. The force of violence was transmitted by way of the anterior crucial ligament. There were no signs of crucial ligament injury.

Patients 2 and 3 passed from my observation, and I cannot report their ultimate condition.

SYMPTOMS

There is sudden severe pain. The patient is unable to arise or straighten the knee. Effusion and swelling are rapid, and there may be marked ecchymosis.

DIAGNOSIS

Fracture of the tibial spine can be diagnosed positively only by means of the roentgen ray. The most presumptive evidence is blocking or locking of the knee, preventing extension; but a displaced semilunar cartilage may produce this phenomenon together with the identical signs of fracture of the tibial spine.

TREATMENT

The treatment should be entirely conservative and should give way to operative interference only when repeated attempts to obtain full extension prove impossible.

The knee should be manipulated under anesthesia until full extension has been obtained, and then immobilized in a splint or preferably in a plaster cast extending from toes to groin. It is best not to disturb this for about eight or ten weeks, at which time the cast is removed and massage and passive motion are instituted.

2. Jones, Robert: Rupture of the Crucial Ligaments of the Knee, and Fractures of the Spine of the Tibia, Brit. J. Surg. **1**: 299 (July) 1913.
3. Kurlander, J. J.: Fracture of Spine of Tibia, Surg., Gynec. & Obst. **20**: 179 (Feb.) 1915.
4. Sever, J. W.: Am. J. Orthop. Surg. **14**: 299 (May) 1916.
5. Smith, S. Alwyn: Brit. J. Surg. **6**: 176 (Oct.) 1918.
6. Jones, S. Fostick: Colorado Med. **17**: 217 (Aug.) 1920.

Should the crucial ligaments be ruptured, the same treatment should be followed, except that immobilization is maintained for at least three months or more.

The results of conservative treatment are usually highly satisfactory.

Where chronic disability due to blocking of extension persists, it is best to remove the offending fragment of bone through the split patellar incision. The postpatellar pad of fat is removed and an excellent view of the tibial spine and anterior crucial ligament is obtained. Any obstructive mass is removed and the knee straightened. The incision is then closed. No suture of the patella is necessary. The leg is then immobilized for six weeks, after which the dressings are removed and motion commenced.

630 Osborn Building.

ABSTRACT OF DISCUSSION

DR. ROLAND HAMMOND, Providence, R. I.: Many injuries of the knee are overlooked because roentgen-ray examinations are not made at the time of the injury, or are not made properly. I believe that proper examination of cases of severe knee injury would show many more of these fractures than the statistics quoted by Dr. Kurlander disclose. The significant point is that when we find an injury to the spine of the tibia, fixation should be prolonged for a greater time than is ordinarily done. When we come to the severe cases not properly treated, the problem is more serious. Rupture of the crucial ligament leaves a badly damaged knee. Are we to condemn the patient to a life of wearing a brace, or attempt reconstruction of the crucial ligament by the operation of Alwyn Smith? I have never tried any of these operations. They seem to me to be formidable, but I have seen good results from them and I think they are worthy of trial.

SIR ROBERT JONES, Liverpool: Dr. Kurlander has given a very accurate and full description of fractures of the spine of the tibia and sketched the anatomy. I have seen a great many of these cases, and on looking up old roentgenograms I have found that in early days I had overlooked a great number of these fractures. This condition is so closely associated with injury to the crucial ligaments that it is impossible to study the question without paying attention to this fact. The symptoms of rupture of the crucial ligaments are very clear when we bear in mind the anatomy. Internal rotation is the most important factor, and the force is intensified by abduction of the limb, the ligament being drawn across the sharp internal margin of the external condyle. It is fortunate that when rupture does occur it generally occurs at the attachment to bone and renders any attempt at immediate suture not only difficult but sometimes impossible. We must remember that the anterior crucial ligament is tense when the knee is fully extended, and prevents the tibia being displaced forward on the femur, and that the posterior crucial ligament is tense in complete flexion and prevents the tibia being displaced backward on the femur. Remembering these facts makes the diagnosis easy. If after an injury of the knee the tibia can be displaced backward or forward or rotated inward in the extended position, an injury of one or both crucial ligaments may be diagnosed. If in the extended position the tibia cannot be displaced forward, it may be assumed that the anterior crucial ligament is not torn across. If in the fully flexed position the tibia cannot be displaced backward, the posterior crucial ligament is presumably not injured. The most constant sign of fracture of the spine of the tibia is an obstruction to full extension. The block feels like a definite bone obstruction, and is quite different from the locking which occurs when the semilunar cartilage is nipped. In the case of displacement forward of the fractured spine of the tibia, it is necessary to remove it if we are to obtain full extension of the knee. This is best done by an incision through the patella from above downward while the knee is flexed over a table. An excellent view can in this way be obtained of the anterior crucial ligament and also of the displaced tibia. If the case is seen immediately after injury and a bone block is present, the knee should be manipulated until full extension is secured. If there is no laxity of the joint as a result of injury to the crucial or other ligaments, fixation should be applied, not exceeding a few weeks, and good function may be expected. If, however, full extension is not possible an operation will have to be performed. The management of old ruptures of the crucial ligaments with fracture of the spine of the tibia, which have not been treated adequately, is definite. In a certain proportion of such cases improvement will occur by limiting the strain on the injured ligament, while in others there is a tendency to increase of disability, more especially when the lateral ligaments have also been badly injured. This point of view, however, must also be remembered: quite a number of patients show little functional disability, although they are able at will to push the tibia to and fro on the femur. I have known men who have suffered from dislocation of the knee in early life, showing all signs of rupture of the anterior crucials, and yet able to walk. In my opinion, secondary operations on the crucial ligaments are of very little practical utility.

DR. CHARLES F. PAINTER, Boston: I did not realize that there were so few cases of fracture of the spine of the tibia recorded in the literature. I have seen four cases. I operated on two patients whose anterior ligament was ruptured. The longer fragment of the tendon was the anterior one, which made the operation very difficult. Both patients, one a woman over 50, the other an aviator, aged 35, had received their injuries more than two years before. Fragments of connective tissue were between the two stumps, but not enough to establish a useful ligament. The operation consisted in making a silk ligament connecting the torn ends, and both patients now have stable joints. One case is only of three months' duration, but the man has a laterally stable knee, flexion to right angles and complete extension. He is protected with the "cage splint" devised by Sir Robert Jones, and I think he will do very well.

DR. HORACE R. ALLEN, Indianapolis: Before making a median line incision through the patella, I would advise any one to flex the knee clear back in order to see if the median line through the patella in extreme flexion corresponds closely to the median line through the lower extremity in extension. Occasionally, in men with unusually strong legs and in some others, the patella deviates strongly to the outer side of the median line when the knee is flexed well back. I heartily agree with Sir Robert Jones that through the usual methods it is a most difficult task to anchor the fractured spine of the tibia back in place without leaving some foreign body within the knee joint. Some years ago I reported a method of entrance to the knee joint without cutting the capsule of the joint and without splitting the patella. Just below the tubercle of the tibia, saw posteriorly about 1 cm.; then saw vertically to within about 0.5 cm. of the articulation, and then saw posteriorly toward the popliteal space. When within a safe distance, use a thin chisel, carefully cutting the unsawed remainder of the upper end of the tibia. This leaves the knee joint intact. The soft tissues of the popliteal space serve as a hinge between the leg and thigh. When the leg is well flexed, the lower end of the femur is covered by the thin plate of the tibial articulation. At an appropriate point between the condyles of the femur, a hole is made through the tibial plate. The spine of the tibia is then pulled down and anchored to the plate. Gouge out a space for the knots. Then bring the leg back into extension and treat the patient for a broken leg. It must be remembered that it takes about as long for the spine of the tibia to grow back in place as it does to secure bony union where the bone has been sawed. In all of my bone work I am careful to wash out all fats soluble in ether before closing a wound. I have thus so far avoided the evils of fatty embolism and possibly this point in technic plays an important part.

DR. JOSEPH J. KURLANDER, Cleveland: This condition is probably not so very rare; if we roentgenograph all our cases we shall see more of them.

AN ETIOLOGIC FACTOR IN ANGIONEUROTIC EDEMA

PRELIMINARY REPORT

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A peculiarly striking vasomotor disturbance is angioneurotic edema, otherwise known as giant urticaria, or Quincke's disease. Although first described as a clinical entity by Stolpertus as early as 1778, nothing is as yet known of its etiology, and the results of treatment have been negligible. The condition is characterized by a sudden localized swelling of the skin of the face or limbs, lasting from a few hours to a day or so, and as suddenly disappearing. A rapidly fatal result has been known to follow an attack involving the larynx, the patient being asphyxiated before tracheotomy could be accomplished.

The similarity in the pathologic conditions found in the cases here reported, together with the striking results which followed the same line of therapy in each case, points significantly to an etiologic possibility which may prove later to have an important bearing on this and similar vasomotor disorders.

REPORT OF CASES

CASE 1.—A widow, aged 66, who had always been well aside from frequent attacks of tonsillitis and an illness ten years before, described as Bright's disease, complained of frequent large swellings of the face, tongue, arms, legs, hands and feet. The first attack took place six years before, and the swellings had been recurring with great frequency ever since. The attacks were likely to occur in series, the tongue being so swollen one day that speech was impossible, while the next day the tongue would be normal but one hand or the other, or the whole arm, would be swollen, then the feet, legs, etc. Such a series was followed usually by a period of from ten to twenty days when there were no swellings to be seen. The patient had never been free of an attack for a period longer than three weeks since the trouble started. The swellings appeared with great suddenness and without warning. There was a feeling of flushing and filling of the affected area, followed by itching. The swellings disappeared as rapidly as they came.

There had been frequent attacks of sore throat during the last ten years; she complained of dryness and harshness in the back of the throat, with much dropping of mucus and a bad taste in the mouth. Dull headaches had been almost constant for several years.

The positive findings on physical examination were all confined to the head. The left antrum and ethmoid sinuses were found to be the seat of an old suppurative process, this finding being confirmed by roentgen-ray examination. The tonsils were extremely septic, there being appended a note to the effect that we might expect a severe reaction to follow operations.

The blood pressure was: systolic, 223; diastolic, 110; hemoglobin, 62 per cent.; leukocytes, 4,500; Wassermann reaction, negative; urine, normal, and sputum, negative for tubercle bacilli.

A radical sinus operation revealed the antrum filled with a greenish yellow pus and marked polypoid degeneration of the lining membrane. The ethmoid cells were soft, and contained pus and polypoid material. The sphenoidal cells likewise contained a small amount of pus. The operation was followed by considerable shock.

Four days later the patient had the worst attacks she had ever had, the swellings affecting the face, tongue and both hands, and for the next ten days one region after another became severely affected.

The tonsils were then removed. The following day the lips, face, tongue and hands were greatly swollen for six hours. During the following week no further attacks appeared, and the patient was discharged.

Four months after operation the patient stated that she had been entirely free from all swellings for the last three months. The longest interval between attacks since the onset of the disease, six years before, had been three weeks. Her general health was much improved. The hemoglobin was now 84 per cent., and blood pressure down to 180.

CASE 2.—A married women, aged 50, with a negative history, stated that for two years she had been greatly troubled with sudden swellings of the left arm, left hand and occasionally the left leg and ankle. During the two years since the first attack the swellings had recurred regularly once or twice every month, and were especially liable to appear when she was fatigued. The swelling was usually most marked in the left arm, which at one time suddenly increased 4 inches in circumference.

Head examination, corroborated by roentgen-ray examination, revealed a marked chronic involvement of the sinuses of the left side; also diseased tonsils. A radical sinus operation disclosed the same polypoid change in the lining membrane and much pus. A few days later the tonsils were removed. There was no marked shock or reaction. During the next few months the attacks became milder and less frequent. This patient has now been entirely free of attacks for more than eighteen months.

COMMENT

In many respects, there exists a great similarity between angioneurotic edema and certain anaphylactic reactions. We know that asthma and certain bronchitic conditions may be merely anaphylactic reactions. We likewise know that sinus infections and nasal polyps may result in a respiratory picture very similar to the ordinary anaphylactic reactions. It is quite conceivable, and certainly these cases would indicate very strongly, that there may exist an etiologic factor in these chronic nasal sinus infections, with the accompanying polypoid change, which may cast much light on anaphylactic manifestations in general. The results of certain experimental work along this line, now in progress, are awaited with much interest

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CHRONIC POISONING FROM MIXTURE OF POTASSIUM NITRATE AND SULPHUR

REPORT OF CASE

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There is no reference to chronic potassium nitrate poisoning in standard works on toxicology or therapeutics. A fairly extensive search of the literature fails to reveal any case of chronic poisoning. The acute poisoning usually occurs after accidental administration, the nitrate being mistaken for Epsom salt. It is noted that 4 gm. of the drugs is sufficient to cause symptoms of acute poisoning characterized by marked intestinal irritation, vomiting and prostration. Eight grams have caused death within two hours. Recovery has been noted after the ingestion of 30 gm.

White, in his work on materia medica, notes that the salt has a high diffusive power and that it acts as a cardiac depressant rendering the cardiac pulsations feebler and fewer in number. Small doses, from 0.3 to 1 gm., act as a diuretic. The injection of the salt

increases the elimination of chlorids. It was noted by White that in vitro the salt prevented coagulation of the blood, but he states that it is not known that it has any effect on the circulating blood. A distinct toxic action was noted on the heart if the amount in the blood exceeded 0.05 per cent.

REPORT OF CASE

The fatal case of poisoning occurred in a farmer, aged 57, whose general health had always been excellent. He was seen by me on several occasions during the last two years for a chronic sacro-iliac arthritis. A urinalysis was made, Jan. 5, 1921, which was negative both chemically and microscopically. The total amount of urine in twenty-four hours at that time was 49 ounces. The blood pressure was: systolic, 150; diastolic, 85.

Some three weeks after this consultation the patient was advised by a friend to take equal parts of sulphur and saltpeter in teaspoonful doses four times a day. He followed this treatment for twenty-six days, taking daily approximately 10 gm. of potassium nitrate.

He was seen, February 20. At that time he appeared to be acutely ill. His eyes were sunken, he had lost much in weight, and was very nervous. He complained of intense muscular pain aggravated by motion or touch. The symptoms were suggestive of trichinosis, but this was ruled out by the absence of edema and eosinophilia. The temperature was normal or subnormal at all times. The pulse varied from 85 to 95. The blood pressure was: systolic, 140; diastolic, 80. The stools were distinctly loose. There was no paralysis. The deep reflexes were normal; the pupils reacted to light and accommodation, and vision was not impaired. The examination of the chest and abdomen was negative.

The blood findings were suggestive of a simple but high grade anemia: hemoglobin, 50 per cent.; erythrocytes, 290,000; leukocytes, 8,500. A few poikilocytes were found. Eosinophilia was not marked. The twenty-four hours' urine amounted to 21 ounces, with urea 2.25 per cent. Albumin was present in substantial quantities. There were a few hyaline and waxy casts, and few red blood cells.

In spite of diuretic treatment, the output of urine remained around 20 ounces a day, and if water was increased the quantity of urine was not raised but it would be eliminated in the form of cold perspiration. The muscular pains gradually subsided on discontinuing the salt, but the restlessness persisted. He was sleepless for days at a time, and the loss of flesh was very rapid. The stools contained no blood or intestinal parasites. He died, March 7, seventeen days after he came under observation and treatment for the nitrate poisoning. Unfortunately, a necropsy could not be obtained.

At the time he began the ingestion of the mixture of saltpeter and sulphur he was strong and healthy with the exception of his arthritis. The illness began shortly after he began taking the large doses of potassium nitrate. The symptoms became more stormy as the illness progressed. At no time was there edema, dyspnea or cardiovascular disturbance. There were no symptoms of uremic poisoning, in spite of the evident kidney involvement and the low urinary output. The most significant thing during his illness was the profound blood changes.

COMMENT

Clinical reasoning leads me to attribute this man's death to the ingestion of potassium nitrate, though the sulphur may be thought an incriminating element. Sulphur has been used as a cathartic for years, and it is frequently fed to children over long periods in substantial doses. Treacle and sulphur was at one time a highly esteemed domestic remedy, and was thought to be especially useful in the spring. Though effective in these conditions, it is not highly reactive. On the other hand, the quantity of potassium nitrate taken daily by this man was sufficient to cause symptoms of acute poisoning, and in works on toxicology it is noted that 8 gm. have caused death within a few hours. That the continuous administration of potassium nitrate is likely to cause chronic poisoning would be in accordance with the general rule that all substances which cause acute poisoning will be followed by chronic poisoning with the successive administration of subtoxic doses. It is my opinion, therefore, that the poisoning was due to potassium nitrate; but as I have no data which eliminate definitely any sulphur action, I must perforce include sulphur in the record title.

It is regrettable that inability to obtain a postmortem renders the cause of death somewhat problematic. There can be no doubt that the immediate cause was the profound blood changes. In this connection it is interesting to note that White observed that the coagulation of the blood was prevented by the salt. While there is no proof that it acts in the same way on the circulating blood, it probably did so in this case. The puncture of the ear made for the purpose of a blood count in this patient bled for six hours.

THE FAD FOR PSEUDOSCIENCE

PERTINENT QUERIES AND MUSINGS

GEORGE DE TARNOWSKY, M.D.

CHICAGO

Blind indeed must be the present-day Esculapian who does not sense the changing attitude of many laymen toward our profession. With all due allowance made for the endemic reform wave, the competition of pathies and isms, the desire for "something new" and the unmistakable tendency toward compulsory state health insurance, the fact remains that our patients are demanding that they be more fully taken into consideration as individuals and not as cases, and that they be subjected to lines of treatment based on natural laws. Equally blind is the doctor—specialist or general practitioner—who, frankly comparing notes with his colleagues, has not sensed a faint but nevertheless unmistakable awakening to a fuller realization of the truth as at present understood, based on rational knowledge of the basic subjects of our medical studies.

Why is there so much medical unrest, so much open or hidden dissatisfaction among an ever increasing percentage of the medical profession? It is still fashionable to blame the World War for everything; certain it is that many of our fellows returned from camp or overseas to their more or less thoroughly disrupted civil practices with new ideas, new thoughts and many doubts regarding the value of certain surgical or medical "sheet-anchors" to which they had clung through the years as barnacles to a ship's bottom—barnacles being periodically scraped off whenever a vessel is dry-docked for repairs. Never in the past quarter of a century has there been such dire need of medical dry-docking as at present.

May all this mental doubt not be due to the fact that the medical "Intelligentzia," to use a now popular term, has come to realize that it knows too much and too little of the forces which preside over the state of balance which we call health, and of the biochemical changes which occur in departures from the normal? Happy indeed is the physician who can

still prescribe tincture of ferric chlorid in erysipelas or apply a beautifully finished and carefully dated plaster-of-Paris cast over a nonreduced fracture with a clear conscience; thrice happy and to be envied is the still more venerable practitioner who has definite specifics which can, in the twinkling of an eye, "scatter" inflammation internally or externally. The rest of us, having more or less unwillingly discarded many of our old methods and beliefs, are at present confronted with a mass of new undigested theories, dogmatic assertions and extravagant claims. Old mental props lie discarded at our feet before consolidation of the new has taken place, and we—the sober-minded conservatives—sadly but gingerly creep along with the fear of angulation ever before our eyes, while fad follows fad and the public, with its ever increasing knowledge of fundamental biology and physiology, begins to question our authority.

Methods of treatment have ever changed with—not ahead of—the evolution of knowledge; but, whereas in the past the individual's gastro-intestinal tract could rebel and eject the offending portion per vias naturales —either proximal or distal—nature is now given no chance of asserting itself because we either plunge our medication intramuscularly, intravenously or intrathecally, or else apply emanations whose potentiality for harm, when injudiciously used, is rarely mentioned in scientific discussions. Only the other day were we assured that the proper way to treat tonsillar hypertrophies was to subject them to repeated applications of the roentgen rays. How many calamities will be necessary before this new method is discarded?

Are there no voices in the wilderness sending out a warning cry which will cause the thoughtless among us to pause and think before accepting new curios and applying them to the alleviation of disease? Yes, thank heaven, a few courageous physicians have recently made themselves heard in no uncertain tones. Read Harvey Cushing's presidential address, delivered before the Society for the Study of Endocrinology. The World War gave me many opportunities for studying the effect on unwilling spectators of a bomb falling unexpectedly among them, and I bitterly regret having missed this recent treat. In the April, 1921, number of the *American Journal of Syphilis* is another timely note of warning uttered by A. R. Fraser, medical inspector of venereal diseases for the Union Government of South Africa. In this article (Some Account of the Responsibility of Intensive Treatment Methods with Regard to the Incidence of Early Neurosyphilis), Fraser squarely lays the responsibility for the serious increase of neurosyphilis to intensive intrathecal neo-arsphenamin treatment. He says:

> At the present time the world of syphilology is obsessed with the apparently premier position of the pathological and serological finding. The syphilologist is being strangled by the tyranny of the Wassermann reaction. His sheet anchor in diagnosis is the Wassermann, his standard of cure is summed up in the word Wassermann, and his ultimate hopes and fears with regard to the future welfare of his patient are obscured in the misty haze of an empirical and nonspecific potentiality to deviate complement.

Fraser's plea for a more rational line of treatment is based on the fact that early intensive arsphenamin or neo-arsphenamin therapy inhibits the formation of antibodies, the presence of which prevents invasion of the central nervous system. At a meeting of the Chicago Medical Society in May of this year, Ludwig Hektoen emphasized the all too little known fact that both roentgen-ray and radium emanations inhibit phagocytosis and hence lower the natural resistance of our body-cells. In a recent number (April, 1921) of the *Anales de la Facultad de Medicina* of Lima, Peru, is the bold statement made by Escomel to his students that:

> Each individual exhibits idiosyncrasies or special predispositions to immunity or anaphylaxis; in his own blood stream are marshaled the forces of reaction, and it follows therefore that his serum contains all of the biochemical elements, either in process of transformation or reaction, with which he will defend himself against bacterial invasion regardless of the latter's species, strain or morphology. It is therefore self-evident that each individual harbors a polyvalent serum which belongs to him exclusively and which is capable of exerting the maximum of benefit or of curative value on himself alone. Is this not tantamount to the frank admission that departures from the normal, i. e., diseases, tend to be overcome by means of a total, integral autogenous serum? Even granting that a very few so-called specific anti-toxins, such as those of diphtheria or of tetanus, have proved their prophylactic or curative value, there are valid objections against the use of serums obtained from zoological species which differ more or less widely from man; is it not reasonable to ascribe to this fact the majority—if not all—of the hemolytic and anaphylactic phenomena which have sometimes even terminated fatally? Does not the use of a heterogenous antitoxin explain the not infrequent failures which in all probability always occur in polymicrobian infections?

With equal truth Escomel might have added that the polyvalent commercial antitoxins represent a thoroughly inaccurate and unscientific attempt to meet this polymicrobian type of infection. Inaccurate because the individual's bacterial flora are rarely, if ever, cultivated and identified prior to the use of these "shotgun" infections; unscientific because, even if such cultures were made, they could not accurately indicate the relative present toxicity of the various strains in the individual and hence determine the percentage of each and every "specific" antitoxin which the manufacturer so glibly puts up and markets for the convience of our inert gray matter. Is not Pierre Duval's recent attempt to treat appendical infections by means of polyvalent stock vaccines which include all "probable" bacterial strains—from *Streptococcus hemolyticus* to the colon bacillus, with *Bacillus catarrhalis* and a few other varieties thrown in for good measure—a distinctly retrograde one, scientifically speaking? Finally, are there not grave doubts in the minds of many thoughtful men, internists as well as surgeons, that antitoxin reactions are merely nonspecific protein reactions? Is not the present wave of "milk-serum" injections a tacit admission of the truthfulness of the foregoing suspicion?

The craze for novelty, love of the pseudomiraculous and fear of not finding himself "in the procession" are prompting too many of our colleagues to discard methods of treatment which have stood the test of time for pseudoscientific measures which appeal to the imagination or inherent love of mysticism of our patients; and we, the conservatives, are called on to repair the often irreparable damage done by the faddist.

A 50-year-old man presented himself with the following history: A life-long sufferer from a chronic hereditary dermatitis involving the palms of both hands, he had been

recently persuaded to take a course of Finsen light treatments. The result had been a total loss of five fingers and the partial loss of the remaining five, with marked tendon contraction and a chronic intractable ulceration of both palms. Portions of both thumbs and of the index fingers remained, and a plastic repair of the damage was sought by the patient. As there were unmistakable evidences of bone necrosis in the various stumps, the ultimate outlook was not very reassuring.

A well developed case of tuberculous cervical adenitis in an 8-year-old girl was brought to me; the glands, though already fluctuating, had not broken down, and a radical operation was clearly indicated and advised. Influenced by the statements of an enthusiast, violet rays were extolled in order to "save the child from the knife." A year later the sorrow-stricken parents returned to my office with the same child, who now presented a hideous broken-down suppurating scar involving the entire right anterior angle of the neck. "How soon can you perform a plastic repair of my little girl's neck?"

A 14-year old girl, suffering from recurrent attacks of gastro-enteritis, was dubbed a "deficient endocrine" and given pellets in which anterior pituitary, suprarenal, pancreatic and ovarian extracts had been judiciously blended by some commercial firm dealing in these miracle producing preparations. Physical examination plus a bismuth-meal roentgenogram revealed a V-shaped kink of the transverse colon with gastroptosis.

On the eve of entering a city hospital for further observation, a former patient presented herself to me with total aphonia and a train of clinical symptoms dating back several years which clearly pointed to the specific origin of her trouble. The almost self-evident diagnosis was merely confirmed by a four plus Wassermann reaction, and massive doses of potassium iodid performed a "miracle." Yet this patient had been receiving local treatments for several weeks at the hands of one who should have known better.

A 30-year-old unmarried woman was treated for six months for intermittent fever by means of stock vaccines. When referred to me by the family, the patient's entire pelvis was found to be occupied by a large, fluctuating mass which reached to the umbilical line. Clinical signs of pulmonary tuberculosis were readily obtained and the laboratory reported a positive sputum. A rapid abdominal drainage revealed a double pyosalpinx with two fistulas of the ileum, and well advanced tuberculous peritonitis.

The preceding are a few of the cases encountered since the war which have prompted these musings. How can we teachers protect the present and future graduates in medicine from these fatal tendencies? Can we not more strongly impress on them the reliability of basic principles of anatomy, physiology and biology, and the unreliability of commercialized ready-to-use methods which are surely undermining our standing in the body-social? Are we sufficiently emphasizing the curative forces of nature in our lectures or demonstrations—whether they be on general or special topics of the healing art? Is it not the duty of teachers —either in the fundamentals or in the specialties—to tell our students what nature, unaided, will do or try to do in any given departure from the normal in order that they may learn to avoid antagonizing the forces of nature which we are at last beginning to understand and appreciate at their true value? Is it not time for us to clean house, to teach our students along rational lines, discarding the many fetishes we have so long clung to and cautioning them against new theories until the latter have become facts? Both in surgery and in internal medicine we have often failed to give nature full play, and the undoubted success of the host of pathies and pseudoreligious sects with which we are waging a more or less futile and undignified warfare is the natural reaction against our stubbornness.

Will not our position in the body-social be strengthened rather than weakened when we drop the mantle of mystery with which we at present surround ourselves and frankly take the public into our confidence? The time will never arrive when nature cannot be helped in a myriad logical ways and medical men will ever be in demand; the trouble with our profession is that it persists in too much meddlesome therapy—using the term in its broadest sense— to the detriment of nature. We are losing sight of "the patient himself"—to quote from Dr. Hugh T. Patrick's superb article on the subject, and many of us are substituting machine-made diagnoses for clinical acumen, ready-to-use advertised remedies for intelligent cooperation with nature, fads for facts.

Let's dry-dock!

BLOOD SUGAR AND BASAL METABOLISM

FINDINGS IN CHRONIC PULMONARY TUBERCULOSIS AND HYPERTHYROIDISM

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This paper is based on some of the studies that the laboratories of the North Carolina State Sanatorium have been pursuing during the current year, and is a continuation of our work on the differential diagnosis of incipient pulmonary tuberculosis and incipient hyperthyroidism.

First, let us report our findings on the basal metabolic rate in tuberculosis. For this work we used a modified Benedict [1] metabolimeter whereby the rate of oxygen consumption per unit of time is determined. This finding is converted into calories of heat per hour and divided, using Du Bois' [2] body area formula, by the square meters of body surface, which in turn gives the metabolic rate per square meter of body surface per hour. This determined rate is compared with the known normal rate as given by Aub and Du Bois [3] based on age, weight, height and sex, and from this the percentage of increase or decrease is determined.

The literature on basal metabolism in chronic pulmonary tuberculosis is very meager despite the fact that even as far back as 1882 to 1893 such workers as Muller,[4] Kurlov,[5] Grudziev [6] and Bochkarev [7] each found in a very thorough and scientific study of a few cases of pulmonary tuberculosis that the nitrogen metabolism was increased in this disease. McCann and Barr [8] have recently published, among their numerous reports on basal metabolism, a paper on the basal metabolic rate in tuberculosis in which they find that

1. Benedict, F. G.: A Portable Respiratory Apparatus for Clinical Use, Boston M. & S. J. **182**: 243-245 (March 4) 1920.
2. Du Bois, Delafield, and Du Bois, E. F.: A Formula to Estimate the Approximate Surface Area if Height and Weight be Known, Arch. Int. Med. **17**: 863 (June) 1916.
3. Aub, J. C., and Du Bois, E. F.: The Basal Metabolism of Old Men, Arch. Int. Med. **19**: 823 (May) 1917.
4. Muller: Ztschr. f. klin. Med. **12**: 57, 1882.
5. Kurlov: Inaug. Diss. (Russian), 1886, Table 1.
6. Gruzdiev: Vrach **11**: 213, Table 1; ibid., Table 7.
7. Bochkarev: Inaug. Diss. (Russian), 1893, p. 2.
8. McCann, W. S., and Barr, D. P.: Basal Metabolism in Tuberculosis, Arch. Int. Med. **26**: 663 (Dec.) 1920.

"the basal metabolism of tuberculous patients may be normal or very slightly above that of normal men of of the same size." Boothby[9] believes that we can gain very little in the diagnosis of incipient pulmonary tuberculosis by the study of the basal metabolic rate.

Our studies have been on twenty-three incipient, seventeen moderately advanced and four far advanced cases, along with six known nontuberculous persons. This totals fifty cases, three of which are duplicates. In each case a routine duplicate determination was done as a check. This gives a grand total of 100 determinations.

FINDINGS

In 59 per cent., three cases of which are suspicious hyperthyroids, of the fifty-four tuberculous the basal metabolic rate was increased over 10 per cent.; in 36 per cent., one case of which had been a very definite hyperthoyroid but in which we had lately given three roentgen-ray treatments over the gland according to Hodges,[10] there was a normal basal metabolic rate; and in 5 per cent. there was a decreased basal metabolic rate. According to classification, we found in the twenty-three incipients the basal metabolic rate increased in 61 per cent., normal in 35 per cent., and decreased in 4 per cent. The seventeen moderately advanced and four far advanced, grouped together, showed: increased, 57 per cent.; normal, 38 per cent.; decreased, 5 per cent.

According to classification of the cases, we found the following: In the twenty-two incipient: increased basal metabolic rate and increased blood sugar, 36 per cent.; increased basal metabolic rate and normal blood sugar, 18 per cent.; normal basal metabolic rate and increased blood sugar, 18 per cent.; normal basal metabolic rate and normal blood sugar, 14 per cent.; decreased basal metabolic rate and increased blood sugar, 5 per cent.; increased basal metabolic rate and decreased blood sugar, 4.5 per cent.; normal basal metabolic rate and decreased blood sugar, 4.5 per cent. There were no incipient cases with a decreased basal metabolic rate and a normal or decreased blood sugar. In the twenty-one moderately and far advanced, grouped together, increased basal metabolic rate and increased blood sugar, 24 per cent.; normal basal metabolic rate and normal blood sugar, 24 per cent.; increased basal metabolic rate and decreased blood sugar, 14 per cent.; normal basal metabolic rate and increased blood sugar 14 per cent.; decreased basal metabolic rate and increased blood sugar, 5 per cent. None of this class fall in the following classes: normal basal metabolic rate-decreased blood sugar; decreased basal metabolic rate-normal blood sugar, and decreased basal metabolic rate-decreased blood sugar.

Now, let us report our blood sugar findings: In this work we used Epstein's[11] modification of Lewis and Benedict's[12] method for the reason that our studies, of which this is just a preliminary report, will not permit the frequent withdrawal of larger quantities of blood from the tuberculous. All blood was collected from one and one-half to four hours after a breakfast light in carbohydrates, and used at once. We have called readings between 0.08 per cent. normal.

In view of the literature we are unable to find any bibliography on this subject, though Pottenger[13] believes that it is of little value.

This report is based on the blood sugar findings in seventy-two cases of active pulmonary tuberculosis, and one case of apparently arrested tuberculosis with eight known nontuberculous and healthy adults as laboratory controls and technic checks.

Analysis of the seventy-four tuberculous cases shows the blood sugar increased in 58 per cent., normal in 27 per cent. and decreased in 15 per cent. By classification according to the stage of the disease, we find, in the twenty-seven incipient, the blood sugar to be increased 51 per cent., normal in 33 per cent. and decreased in 16 per cent. Of the forty-six moderately and far advanced grouped together, 65 per cent. increased, 28 per cent. normal and 7 per cent. decreased. The one apparently arrested case showed an increase.

Blood sugar determinations were made in all the forty-four metabolic cases, reported above, with these results: basal metabolic rate and blood sugar increased in 32 per cent.; basal metabolic rate and blood sugar normal, 18 per cent.; basal metabolic rate increased with a normal blood sugar, 18 per cent.; basal metabolic rate normal with an increased blood sugar, 16 per cent.; basal metabolic rate increased with a decreased blood sugar, 9 per cent.; basal metabolic rate decreased with an increased blood sugar, 4.5 per cent.; basal metabolic rate normal with decreased blood sugar, 2.5 per cent.; basal metabolic rate decreased with decreased blood sugar, none; basal metabolic rate decreased with normal blood sugar, none.

To convert the foregoing figures into words, one would say: In about one third of the cases of chronic pulmonary tuberculosis, the basal metabolic rate and the blood sugar are both increased; in about one fifth of all such cases there may be an increased basal metabolic rate and a normal blood sugar, or just the reverse, while in a much smaller percentage of cases, you may find any change in either basal metabolic rate or blood sugar; very seldom, however, would both be decreased or even one decreased and the other normal.

COMMENT

To explain why we found a large percentage of incipient (and other) cases of pulmonary tuberculosis to have an increased basal metabolic rate and blood sugar, as well as the numerous variations of each named above, is extremely difficult, if not impossible. However, we would advance the following theory: Pathologists are agreed that the liver is very resistant to *Bacillus tuberculosis*, while the suprarenal glands are very susceptible. Knowing that *Bacillus tuberculosis* thrives best where its toxins destroy tissue most easily, it is logical to believe that the tuberculotoxins comparatively easily affect the suprarenal glands. Believing this to be true, by deductive reasoning from chemical and physical pathology, it seems possible that the increased basal metabolic rate and increased blood sugar, as well as their several variations cited above, are produced by a stimulation (which is the

9. Boothby, W. M.: Recent communication to the author.
10. Hodges, F. M.: Personal interview.
11. Epstein, A. A.: An Accurate Microchemical Method of Estimating Sugar in the Blood, J. A. M. A. **63**: 1667 (Nov. 7) 1914. Janney, N. W., and Isaacson, V. I.: A Blood Sugar Tolerance Test, ibid. **76**: 1131 (April 20) 1918.
12. Lewis and Benedict: J. Biol. Chem. **20**: 61, 1915.
13. Pottenger, J. E.: Recent communication to the author.

mildest action a poison or toxin can have) of the suprarenals by the tuberculotoxins. This would result in an increased output of the secretion from these glands, which in turn would do three things: (1) Inhibit the island of Langerhans; (2) stimulate glycolysis, and (3) stimulate the thyroid gland to greater activity. The latter action (stimulation of the thyroid gland) would in turn act to prevent or lessen glycogenesis, as well as produce the many hyperthyroid symptoms we frequently meet in incipient and other cases of chronic pulmonary tuberculosis.

When you heard the phrase, "stimulate the suprarenals," you probably immediately thought this: "That theory is incompatible with the established fact that there is usually a vascular hypotension in pulmonary tuberculosis"; and you can furthermore get the case records of the state sanatorium, showing over 6,000 blood pressure readings, as additional evidence of this hypotension. Hamener, Hoskins and McClure [14] and Trendelenburg [15] have found that the secretion of the suprarenal glands does not play an appreciable factor in the maintaining of vascular tension, and they furthermore report that a sufficient concentration of suprarenal secretion in the blood to influence blood pressure will cause a suppression of intestinal peristalsis. Therefore an increased output of this suprarenal secretion, caused by stimulation from the tuberculotoxins, needs not cause any blood pressure changes.

CONCLUSIONS

Remembering the well established fact that hyperthyroidism consistently shows both an increased basal metabolic rate and an increased blood sugar, it is impossible for us to draw from our work any other conclusion than this: The determinations of basal metabolic rate and blood sugar are of no practical value in the differential diagnosis of chronic pulmonary tuberculosis and hyperthyroidism.

14. Hoskins, R. G., and McClure, C. W.: Am. J. Physiol. **30**: 192, 1911-1912; **31**: 50, 1912-1913. The Adrenal Glands and Blood Pressure, Arch. Int. Med. **10**: 343 (Oct.) 1912.

15. Trendelenburg, W.: Ueber die Beziehungen der Nebennieren zur normalen Blutdruckhohe, Ztschr. f. Biol. **43**: 155, 1914.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BEEBE PROTEIN MILK.—Eiweiss Milch of Finkelstein.—A modified milk preparation having a relatively low content of carbohydrate and fat and a relatively high protein content. Each 100 Gm. contains approximately, solids 10.2 Gm., carbohydrate 2.5 Gm., protein (casein 5.3 Gm., fat 1.6 Gm. and ash 0.8 Gm. (The acidity is stated on each package.)

Actions and Uses.—According to Finkelstein, the mineral and lactose content of cow's milk is irritating, in some cases, to the gastro-intestinal membrane, causing fermentation and indigestion. The high protein content of protein milk is claimed to act as a preventive of fermentation and to serve as a medium in which a change in the intestinal flora takes place; thus it is claimed to be an aid in overcoming conditions manifested by fat and sugar intolerance. Protein milk is said to be especially indicated in gastro-intestinal disorders of infants, accompanied by fermentation and diarrhea.

Dosage.—For the majority of conditions, Beebe Protein Milk should be administered in small quantities according to age and condition of the patient after a period of starvation of from twelve to forty-eight hours. Suitable carbohydrates may gradually be added to the preparation, as indicated by the clinical conditions.

For use, the contents of one can of Beebe Protein Milk, after thorough shaking, are emptied through a strainer or sieve into a clean quart measure, the solids being gently forced through with a spoon; carbohydrates, if prescribed, are dissolved in a little warm water and added to the protein milk, and then sufficient boiled water is added to make one quart. The finished mixture without additional carbohydrates contains approximately 31.7 Gm. of protein, 15.1 Gm. of carbohydrate, 9.5 Gm. of fat and 5.4 Gm. of ash.

Manufactured by Beebe Laboratories, Inc., St. Paul, Minn. No U. S. patent or trademark.

Beebe Protein Milk is manufactured by adding freshly prepared and finely divided casein to fresh buttermilk brought to a temperature of 100 C., filled in cans, which are sealed and sterilized by heat.

BEEBE MODIFIED BUTTERMILK.—Buttermilk with flour.—Buttermilk Modified formula of Langstein and Meyer.—Buttermilk containing flour partially dextrinized by heat. Each 100 Gm. contains approximately total solids 9.7 Gm., carbohydrates 4.7 Gm., protein (N × 6.38) 3.3 Gm., fat 0.6 Gm. and ash 1.2 Gm. (The acidity is stated on each package.)

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The nutritive value of 500 Gm. of Beebe Modified Buttermilk corresponds approximately to 191.5 calories, of which 95.5 are due to carbohydrate, 67.7 to protein and 28.3 to fat.

Dosage.—From 175 to 300 c.c. (6 to 10 fluid ounces) at each feeding. For the average infant 100 c.c. per kilogram of body weight daily, divided into four feedings at four hour intervals.

Manufactured by the Beebe Laboratories, Inc., St. Paul, Minn. No U. S. patent or trademark.

Buttermilk of proper acidity is placed in vats, flour in definite proportions is added and the mixture brought to boiling and then cooled to 80 C., the mixture is again brought to a temperature of boiling and cooled to 80 C., it is again heated to boiling and transferred to cans which are sealed and then sterilized by heat.

MERCURIC OXYCYANIDE (See New and Nonofficial Remedies, 1921, page 194).

Actions and Uses.—Mercuric Oxycyanide has been proposed as a substitute for mercuric chloride. Its antiseptic power is claimed to be greater and it is asserted to be less irritating than mercuric chloride because it does not act on albumin to the same extent. It has the advantage over mercuric chloride in that it does not corrode steel instruments.

Representative syphilographers differ as to the use of mercuric oxycyanide intravenously. Some believe that its use should be limited to hospitals; others, that it has no advantage over other and safer methods of administering mercury; while others consider it safe and valuable; but all are in accord that its safe use requires experience.

Dosage.—Mercuric oxycyanide may be administered subcutaneously, intramuscularly or intravenously in the same doses as mercuric chloride. It may be applied locally in solutions of 1:5,000 or somewhat stronger.

The following dosagé forms have been accepted:

Lasser's Intravenous Solution of Mercury Oxycyanide: Each ampule contains 5 Cc. of solution, representing 0.008 Gm. (⅛ grain) of mercuric oxycyanide, N. N. R.

Prepared by the New York Intravenous Laboratory, New York.

Ampules Ven Sterile Solution Mercury Oxycyanide 0.008 Gm.: Each ampule contains 5 Cc. solution representing 0.008 (⅛ grain) mercuric oxycyanide, N. N. R.

Prepared by The Intra Products Co., Denver, Colo.

Ampules Ven Sterile Solution Mercury Oxycyanide 0.016 Gm.: Each ampule contains 5 Cc. solution representing 0.008 (⅛ grain) mercuric oxycyanide, N. N. R.

Prepared by The Intra Products Co., Denver, Colo.

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SATURDAY, SEPTEMBER 10, 1921

THE CURDLING OF MILK

The study of milk must remain of interest to physicians so long as this fluid continues to be not only a uniquely valuable food for man at various stages of his growth and development, but also a product that plays an important part in dietotherapy. For decades the attention of physiologic chemists has been directed to one or another aspect of the composition and chemical reactions of milk. Recently, the newly recognized food factors designated as vitamins have been foremost in the scientific considerations of milk. A few years earlier, interest was centered in the bacteriologic properties of milk; and, prior to that time, the proteins of milk and their behavior were the subject of considerable discussion in medical circles. Since cow's milk has for a long time been destined to replace human milk in many instances, comparisons between these two products in particular have repeatedly been instituted.

The fact that the rennin coagulation of cow's milk ordinarily results in a curd noticeably unlike that which is produced in human milk through the agency of the gastric enzyme has led to the conclusion, in past years, that the caseins of the two types of milk are chemically unlike. Bosworth [1] has lately undertaken a new investigation of this subject at the Laboratories of the Boston Floating Hospital. This has demonstrated that these caseins are acids having the same chemical composition and the same chemical characteristics. According to Bosworth, under the action of rennin on casein or milk this protein is split into two molecules of a protein designated as paracasein. Whether or not coagulation takes place will depend on the nature of the salts in the milk. The deposition of protein is facilitated by soluble calcium salts, which cow's milk contains, and retarded by soluble salts of the alkalis, which preponderate in breast milk. In other words, as the latter contains small amounts of casein and small amounts of soluble calcium with relatively large amounts of sodium and potassium, rennin produces in it either no curding or only a very small amount of finely divided curds. Bosworth contends that breast milk enters not only the mouth and stomach but ordinarily also the intestine in a liquid state. No large curds are formed in the stomach, at any rate, and therefore they cannot block the pylorus, as may happen when cow's milk or some of its modifications are ingested by infants. Modifications of cow's milk to prevent objectionable curdling are not unknown in pediatric practice.

That an acid reaction favors the curdling of milk with rennin has long been known. Bosworth asserts that perfectly fresh cow's milk does not curdle on the addition of rennin, though the coagulation is promptly produced as soon as sufficient change in reaction ensues. Hence we are admonished that all cow's milk used for infant feeding should be pasteurized immediately after milking. Evidently such factors as reaction and salt content cannot be overlooked in the consideration of the behavior of milk in the body.

1. Bosworth, A. W.: Strides of Infant Feeding, XIII, The Caseins of Cow's Milk and Human Milk in Their Relation to Infant Feeding; the Action of Rennin on Casein, Am. J. Dis. Child. **22**: 192 (August) 1921.

THE NATURE OF KETOGENESIS

For more than a quarter of a century it has been recognized by students of metabolism that the appearance of the so-called acetone substances—acetoacetic acid, beta-hydroxybutyric acid and acetone—in the body is somehow associated with certain features of the oxidation of carbohydrate. The precursors of the acetone substances are today known to be chiefly the fats and certain amino-acid derivatives of the proteins. The latter have come to be designated as ketogenic, in contrast to the antiketogenic carbohydrates. Ketosis arises whereby acetone and the two related acids are excreted when abnormally small quantities of carbohydrate are being burned in the organism. Various explanations have been offered to account for the well substantiated facts. For example, the somewhat vague and fanciful statement of Rosenfeld [1] that the fats are burned in the flame of the carbohydrates [2] has been widely quoted. At best it may signify the belief that "carbohydrate serves to catalyse or set off the oxidation of fats." Other hypotheses have dwelt upon probable chemical reactions and definite interrelationships between intermediate products of the breakdown of sugar and fatty acids, respectively; but the theories of antiketogenesis have until recently remained too indefinite or untenable to permit any verification in actual physiologic tests.

About a decade ago, Woodyatt [3] of Chicago published an attractive chemical formulation of the view that "antiketogenesis is an effect due to certain products which occur in the oxidation of glucose, an interaction between these products on the one hand and one or

1. Rosenfeld, G.: Berlin. klin. Wchnschr. **43**: 978, 1906.
2. "Der Zündstoff für die Fette sind die Kohlenhydrate."
3. Woodyatt, R. T.: The Action of Glycol Aldehyd and Glycerin Aldehyd in Diabetes Mellitus and the Nature of Antiketogenesis, J. A. M. A. **55**: 2109 (Dec. 19) 1910.

more of the acetone bodies on the other." The deduction has further been made that antiketogenesis is of the nature of a chemical reaction between definite quantities of ketogenic and antiketogenic substances. An analogy in vitro to the action of glucose and similar substances, notably fructose and glycerol, in abolishing or preventing the formation or accumulation of acetoacetic acid and the related compounds in man has been reported by Shaffer [4] of the Washington University Medical School, St. Louis. He has demonstrated that the oxidation of glucose in alkaline solution by hydrogen peroxid accomplishes the disappearance of acetoacetic acid if the latter is present in solution. In the absence of the carbohydrate or "ketolytic" substance the acetoacetic acid disappears at best very slowly, if at all. The inference is that some intermediate oxidation product of glucose combines with acetoacetic acid, the compound then being further oxidized. If this is true, the immediate cause of the formation of acetone substances, as shown in ketonuria, should be essentially the same in both the nondiabetic and the diabetic person. Furthermore, molecular relations, such as apply in ordinary chemical reactions, may be expected to exist between the ketogenic and antiketogenic substances arising normally under conditions in which no abnormal ketosis is manifested.

Recent studies of Shaffer [5] strongly suggest that the hypothesis is correct. He concludes that the minimum molecular ratio of ketogenic to antiketogenic substances for the avoidance of ketonuria in human subjects is 1. When this is exceeded, the familiar pathologic phenomena arise. Woodyatt [6] has recently presented the outcome as follows: The anomaly of the metabolism in which abnormal quantities of acetone, acetoacetic and beta-hydroxybutyric acids appear in the tissues, blood and urine is not due directly to any impairment of the endocrine functions of the pancreas. It is a secondary effect in the nature of a disturbed metabolic balance resulting from the withdrawal of oxidizing glucose, as, when one stone is withdrawn from an arch all the other members settle into a new position. This anomaly, he adds, is not peculiar to diabetes nor constantly associated with it. It occurs in other diseases. It may be made to appear in a normal person by starvation, or a diet containing too low a proportion of carbohydrate and too high a proportion of fat; and when this is done it may be made to appear again by adding more carbohydrate to the diet. It seems, Woodyatt concludes, to be the immediate result of the oxidation of certain fatty acids in the absence of a sufficient proportion of "oxidizing" or dissociated glucose. The rationale of appropriate dietary adjustment in conditions in which ketosis arises will therefore consist in so adjusting the supply of sugar and fatty acids, potential or preformed, that these foodstuffs shall metabolize in suitable proportions. This is a new aspect of nutrition that is certain to demand careful consideration in the near future in relation to practical dietetics in disease.

4. Shaffer, P. A.: Antiketogenesis, I, An in Vitro Analogy, J. Biol. Chem. **47**: 433 (July) 1921.
5. Shaffer, P. A.: Antiketogenesis, II. The Ketogenic Antiketogenic Balance in Man, J. Biol. Chem. **47**: 449 (July) 1921.
6. Woodyatt, R. T.: Objects and Method of Diet Adjustment in Diabetes, Arch. Int. Med. **28**: 125 (Aug. 15) 1921.

CALCIUM AND PHOSPHORUS IN THE BLOOD IN RICKETS

Current literature in the domain of scientific medicine attests the growing interest which has lately been directed to the subject of rickets. This disease, which has been defined as characterized by a deficient deposition of calcium salts in the bones and in the intercellular cartilage of the epiphyses, has long given rise to varied speculations as to its etiology. The successive theories have as a rule had a short-lived popularity because they have in turn failed to satisfy the critical tests of scientific investigation. Latterly the hypothesis of vitamin deficiency—a shortage of vitamin A in the diet—has attained considerable prominence and has been the subject of occasional discussion in THE JOURNAL.[1] At present, however, frequent protests are heard against the assumption that the so-called fat-soluble vitamin A is essentially an antirachitic vitamin. Thus, Hess, McCann and Pappenheimer [2] have found that, although animals receiving a diet complete except for a lack of vitamin A invariably failed to grow and in due season were likely to die, the skeletons showed no gross changes whatever. Microscopic examination presented definite signs of a lack of active osteogenesis, but in no instance lesions resembling rickets. Hence these New York investigators concluded, in conformity with their previous experience in regard to infantile rickets, that if the diet is otherwise adequate, lack of vitamin A does not bring about rickets.

It has been remarked that, since rickets involves certain features of calcification and the salts of bone consist predominantly of calcium phosphate, the concentration of calcium and phosphorus in the circulating fluids of the body may have a significant part in the deposition of these elements. Only in recent years, however, has the analytic technic for the estimation of inorganic elements in the blood been perfected to a stage at which accuracy and clinical applicability are combined. The newer microchemistry of the blood, which has contributed so much to a better conception of the content, in this fluid, of such physiologically important substances as sugar, urea, uric acid and creatinin is also being exploited in the interest of precise knowledge of inorganic constituents. From this

1. Green Foods and Vitamins, editorial, J. A. M. A. **72**: 1077 (April 12) 1919; Some Properties of the Fat-Soluble Vitamin (Fat-Soluble A) ibid. **72**: 1066 (Oct. 4) 1919; The Nature of the Fat-Soluble Vitamin, ibid. **75**: 544 (Aug. 21) 1920.
2. Hess, A. F.; McCann, G. F., and Pappenheimer, A. M.: Experimental Rickets in Rats, II, The Failure of Rats to Develop Rickets on a Diet Deficient in Vitamine A, J. Biol. Chem. **47**: 395 (July) 1921.

it now appears that the calcium content of the serum or plasma is singularly constant under conditions of health. An enormous experience on the part of Howland and his associates in the Department of Pediatrics at the Johns Hopkins University has indicated that in only two conditions previously studied, namely, tetany and nephritis, is there any striking diminution in the circulating calcium. The content of this element in the serum of normal children is reported as slightly higher than that of adults. It is usually between 10 and 11 mg. per hundred cubic centimeters, whereas with adults it is usually from 9 to 10.5 mg. These data[3] are essentially like the plasma values just reported from California by Jones and Nye.[4] There still remains a seemingly irreconcilable difference of opinion with respect to the red corpuscles, in which Howland and Kramer[3] maintain, in distinction from Jones and Nye[4] as well as several other analysts, that there is regularly no demonstrable amount of calcium. That the abnormality of calcification of the bones in rickets is not due to some alteration in the form of the blood calcium whereby it is no longer readily diffusible would seem likely from the observations of von Meysenbug and McCann,[5] who have reported the diffusible calcium in the serum in both experimental tetany and human rickets to be between 60 and 70 per cent. of the total serum calcium.

The phosphorus and bicarbonate of the serum seem to be similarly constant in healthy children. This fact is regarded by Howland and Kramer as determining the constancy of the inorganic composition of normal bone. They have found[3] that, during a period of active rickets, the calcium concentration of the serum may be normal or slightly reduced. The reduction does not seem to them, however, to depend directly on this disease; they are inclined rather to associate it in many instances with a latent form of tetany.

The inorganic phosphorus of the serum, on the other hand, is stated to be regularly reduced in active rickets, sometimes to an extreme degree. This is believed by Howland and Kramer to represent an important deficiency in relation to the causation of the pathologic lesion. To this deficiency is ascribed the failure of calcium deposition. It is argued that calcium salts exist in the blood ordinarily in nearly saturated solution. This would explain why no increase in the blood content of calcium is brought about by feeding calcium salts to animals or to man unless, perchance, there has been a previous reduction of calcium. Howland and Kramer report, for example, that the feeding of soluble calcium salts in large quantities to children and over prolonged periods does not result in any increase in the serum calcium above the normal. It can readily be understood however, that a decrease in the phosphorus of the blood would render more difficult the precipitation of the tertiary calcium phosphate characteristic of bone. According to the most recent data, the ratio of the concentration of calcium to that of phosphorus in the serum of nonrachitic children is practically identical with the ratio of these elements in the tertiary phosphate which composses about nine tenths of the salts of normal bone. The difficulty in the precipitation of such phosphate would even be exaggerated by any reduction in the calcium of the fluid, such as has been found to exist in certain cases.

Practically, it is important to realize, as the result of these studies, that the finding of a low content of inorganic phosphorus in the serum of a young child is nearly conclusive evidence of active rickets. This may have distinct diagnostic importance. During the process of healing, whether the latter occurs spontaneously or as the result of the administration of cod liver oil, the phosphorus content of the serum gradually rises to a normal figure and often somewhat above this, according to Howland and Kramer's observations. Relapses are accompanied by a fall in the phosphorus concentration of the serum. Speaking specifically, all the children under 2½ years of age in whom the inorganic phosphorus content of the serum has been found to be 3 mg. or less per hundred cubic centimeters have been suffering from active rickets. Definite facts of this type cannot fail to be helpful in the further investigation of this hitherto baffling disease.

3. Howland, J., and Kramer, B.: Calcium and Phosphorus in the Serum in Relation to Rickets, Am. J. Dis. Child. **22**: 105 (Aug.) 1921.
4. Jones, Martha R., and Nye, Lillian L.: The Distribution of Calcium and Phosphoric Acid in the Blood of Normal Children, J. Biol. Chem. **47**: 321 (July) 1921.
5. Von Meysenbug, L., and McCann, G. F.: The Diffusible Calcium of the Blood Serum, II, Human Rickets and Experimental Dog Tetany, J. Biol. Chem. **47**: 541 (Aug.) 1921.

Current Comment

INEFFICIENCY OF THE EFFICIENCY EXPERT

Few, if any, captains of industry would be unwilling to accept the dictum *mens sana in corpore sano* as a desirable admonition to those who are under their command in the world of business. Good health is generally recognized as an almost indispensable requisite of a proficient worker. The investigations that have been inaugurated in recent years by the comparatively new science of industrial hygiene have made it increasingly clearer that even slight indispositions, not to mention more pronounced lack of physical stamina, are often sufficient to lower the output or degrade the quality of the work of laborers in many fields of industrial activity. Hence the growing concern of those interested in productivity for the physical welfare and personal well-being of the person who produces. In a recent address, Holmes[1] of the University of Kentucky has struck a timely note, on the other hand, regarding the failure of many of

1. Holmes, P. K.: Science **54**: 158 (Aug. 19) 1921.

our "giant efficiency experts" to apply their principles of efficiency to their own living. Now and then, when the public becomes acquainted with the unexpected breakdown of a great leader of men at an early age, one is impelled to ask whether he failed to apply to himself the same standards of concern for efficiency which he set before his employes. In speaking of the occupational failures of the "experts," Holmes reminds us that their principles of efficiency are frequently not applied to their own living. Big business, he adds, cannot long be done efficiently on artificial stimulants and by flabby muscles and shortness of wind. In the struggle for business, only the strong survive. Today, when there is a great need of capable leaders, it is essential to preach the lesson that even the keenest intellect is not immune from the action of physiologic laws. Even the "experts" must sometimes be admonished to practice what they preach.

THE EXPENSIVE "POOR MAN'S MEDICINE"

A favorite argument of the nostrum exploiters, advanced when threatened with restrictive legislation or taxation, is that "patent medicines" are "the poor man's medicine." Never had a pretension a flimsier basis of fact. But a certain portion of the public can be counted on to accept as gospel any preposterous statement if only it be repeated often enough and in sufficiently black type. The purchaser who buys a bottle of Dr. Quack's Quick Cure does not realize that about 75 cents of his dollar has been expended by Dr. Quack in an effort to convince him that he is suffering from something for which "Quick Cure" is a sure-shot remedy. The most expensive thing about a "patent medicine" is the advertising. As one "patent medicine" maker said, when, in a burst of candor, he was speaking before others of his kind:

> "The twenty thousand newspapers of the United States make more money from advertising the proprietary medicines than do the proprietors of the medicines themselves. . . . Of their receipts, one third to one half goes for advertising."

If, on the admission of the manufacturers, from 33 cents to 50 cents of a dollar paid for a "patent medicine" goes to the newspapers, the additional cost of exploitation in "almanacs," window displays, circulars and other publicity features can easily be counted on to bring the amount up to 75 cents. And the farce—or tragedy—of the whole thing is that John Doe pays this 75 cents—unconsciously—for the purpose of being persuaded that he is suffering from some ailment for which the nostrum is recommended. Every physician and every druggist knows that the present "patent medicine" is unnecessary. He knows that there are already in existence official products more than ample to fill every legitimate need of self-drugging, that is, to furnish all the "home remedies" that can safely be used by the public. These official products being nonsecret, and their strength and purity being guaranteed under federal and state laws, they are in every way superior to the proprietary article of secret composition. Moreover, there being no element of monopoly or proprietorship, in the narrow sense, in the manufacture of these official products, competition may be counted on to keep the price down to a reasonable figure. The small margin of profit on the sale of official products makes it impossible for such preparations to be sold by intensive advertising methods, and their open formula makes false and fraudulent therapeutic claims unfeasible. The abolition of "patent medicine" advertising would do much to abolish the making of hypochondriacs by suggestion and would result in a great decrease in all drug taking. In addition to this large indirect financial saving there would be a direct saving in that when John Doe purchased a simple home remedy he would pay only for the actual cost of the medicine plus a small legitimate "overhead" to cover production and distribution. It is a demonstrable fact that if the public depended on a few of the official products for their home remedies instead of on the multitudinous "patent medicines," they could save 75 cents on every dollar now expended. "Poor Man's Medicine" forsooth!

THE NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners was organized six years ago and has been conducting examinations for five years. It has always held high ideals and has been fortunate in having well known and competent men in its membership. It is to be regretted, however, that thus far only 325 candidates have been examined, of whom 269 have received the Board's certificate. The reasons for this small number are quite evident. The benefit to be derived from the passing of the examination had not been proved. Only recently has the Board's certificate been endorsed by more than a few state boards. With this limited benefit, therefore, recent graduates did not care to devote the time and expense necessary to attend the examinations, which were held only at infrequent intervals and in one, or at most, two centers, possibly thousands of miles away. As previously pointed out in THE JOURNAL[1] a provision whereby the examinations could be held simultaneously in a larger number of widely separated places would be of advantage in that recent graduates could more conveniently take the examinations. It is encouraging to note in a report which appears on another page[2] that the National Board is about to enter on a period of expansion. A student in a high grade medical school will hereafter be enabled to take his examination in three parts, the first two of which are to be taken without leaving his medical school, respectively, at the end of the second and fourth years of his instruction. The third part of the examination also, which consists of practical laboratory and clinical tests, is to be offered simultaneously in at least fifteen cities in widely separated parts of the country. This plan for the greater convenience of candidates and the increasingly wide recognition of the Board's certificate by the licensing boards in this country and in Great Britain gives promise that larger numbers of medical graduates will take

1. J. A. M. A. 74:1104 (April 17) 1920.
2. This issue, page 881.

the examinations. Meanwhile, an additional incentive to graduates in medicine might include not only the certificate of the Board but some fitting designation such as is conferred by the licensing boards of England.

WOMEN IN SCIENCE AND MEDICINE

The doors of opportunity have been thrown open to women in many fields in recent years. According to the statistics presented in the Educational Number of THE JOURNAL,[1] there were 879 women studying medicine last year. This number represents nearly 6 per cent. of all medical students, the largest proportion recorded in many years. With the barriers largely removed which formerly made the progress of women toward the goal of medical practice difficult, some of the obstacles remain which prejudice and tradition still present. One occasionally hears the statement that women are not "adapted" by nature for a career in science. Vague generalities of this sort can scarcely be regarded as constituting a serious arraignment of any group of persons. There may be factors in the present-day life of women which tend to divert their activities from the domain of serious endeavor in the world of science; but there is no real justification for the offhand conclusion that some feminine unfitness precludes success for women either in medicine or in comparable departments of activity. Flexner[2] has given expression to a sane view in advising the students at Bryn Mawr College that there is no line of demarcation between the sciences which men, on the one hand, and women, on the other, should choose as a career. With women as with men, he adds, what should count are taste and aptitude and opportunity. There are various circumstances, partly environmental, partly hereditary, that may help to determine the path which a young man or young woman preferably enters. However, at this season, when our professional schools are beginning their year's work, it is well to emphasize what many untutored persons fail to appreciate, namely, that discoveries in science do not result from mere accident. As Flexner has well expressed it, whether the investigator moves in the lower or the upper realm of experiment and observation, there are demanded, as a minimum, knowledge of fact and familiarity with method, with which not even the most fortunately circumstanced are naturally endowed. Surely there is nothing in this irreducible minimum which cannot be—or has not at times been—attained by women. Hospital experience and other routine medical practice inevitably furnish many opportunities for great discoveries in the science of medicine. America will do its share in realizing these only if it can produce generations of men and women alike equipped with what Pasteur called the "prepared mind." A vivid imagination and keen insight are blessings beyond measure; but foremost is the fundament of a "knowledge of fact and familiarity with method." This is the primary requisite of a trained intelligence and trained senses.

1. J. A. M. A. 77: 531 (Aug. 13) 1921.
2. Flexner, Simon: The Scientific Career for Women, Sc. Month. 13: 97 (Aug.) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Gift for Children's Hospital.—Mrs. Edward Laurence Doheny and Mrs. William May Garland, Los Angeles, have each given $15,000 for the construction of an additional unit to the Children's Hospital, the two units to comprise a new contagious ward. Mrs. Doheny's contribution was made in the name of her children, and Mrs. Garland's gift was made in memory of her mother. Plans have already been drawn for the building and submitted for approval.

Hospital News.—Plans have been completed for the new building to be erected at the County Hospital, Los Angeles, at the cost of $250,000. The building will be three stories and will be provided with 130 beds.——The government's new tuberculosis hospital for discharged service men recently erected at the Soldiers' Home at Sawtelle, at a cost of $500,000, was opened, August 29, and 175 patients moved into the two wings. The buildings, which have accommodation for 350 patients, are joined at the north ends by a temporary service building, containing the wards, kitchens, and dining and operating rooms. According to a statement of Major Vernon Roberts, surgeon in chief, plans are under consideration for two additional hospital buildings, a service and administration building, and possibly additional wings.

DISTRICT OF COLUMBIA

Personal.—Dr. Joseph Winthrop Peabody, resident physician at the Tuberculosis Hospital, was elected superintendent of the institution, August 23, to succeed Dr. William D. Tewksbury, who resigned after ten years' service to engage in private practice in this city.

GEORGIA

Georgia Railway Surgeons' Association.—At the third annual convention of the association, held at Indian Springs, August 17, Dr. Charles H. Richardson, Macon, was elected president, and Dr. Jarret W. Palmer, Ailey, secretary-treasurer. The next meeting will be held at Macon, Aug. 18, 1922.

ILLINOIS

Chicago

Hospital News.—A $1,000,000 hospital, to be named in commemoration of Dr. John B. Murphy, is prospected according to a recent announcement. The plans were approved by Mrs. Murphy just before her death. Dr. Frank Byrnes, associate of the late Dr. Murphy at Columbus Memorial Hospital, and at present manager of the Sheridan Park Hospital, is president of the new J. B. Murphy Hospital Corporation. Twenty physicians and the nurses who worked under Dr. Murphy will form the nucleus of the new hospital's staff. The completed institution will care for 500 patients.

IOWA

Poseskiek County Medical Society.—At a meeting of the society, held September 6, at Montezuma, Dr. Pearl E. Somers of the Grinnell Clinic presented a paper on "Reports of Recent Radium Cases," and Dr. Engelke J. Ringena, on "Effect of Endocrines on Pregnancy."

Scott County Medical Society.—At the regular meeting of the society held, September 6, at Davenport, Dr. Paul A. White, Aberdeen, S. D., spoke on "Radium and Its Uses," with slides showing its results, and Dr. Frederick H. Lamb, Davenport, on "The Hemolytic Anemia of Pregnancy."

Personal.—Dr. Arthur John Lomas, Johns Hopkins University, has been appointed as superintendent of the state university hospital, to succeed Dr. Thomas Graham, who resigned some months ago.——Dr. Herbert V. Scarborough, who was for thirteen years connected with the Oakdale State Hospital for Tuberculosis at Iowa City, has been made medical director of Sunny Crest Sanatorium, which opened August 17.

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KENTUCKY

Hospital News.—Work on the government hospital at Dawson Spring is being rushed as fast as possible. Eight fire-proof buildings are under construction, and the entire unit when completed will include twenty-two buildings.

MARYLAND

Increase in Typhoid Fever.—The Bureau of Communicable Diseases of the Baltimore City Health Department has reported for August 271 cases of typhoid fever. During August of last year only eighty-eight cases developed. The increase of cases is also noticeable in the counties and, to check the spread of the disease, inoculations are being made on a large scale. At the present rate, the bureau fears the disease cannot be checked until October, the end of the seventy-first-day period during which a larger proportion of cases are reported each year.

Maternity Unit for New City Hospital.—Plans for the new municipal hospital, which is shortly to be erected, include a maternity unit. The first step has been taken under the Child Hygiene Bureau, of which Dr. Mary Sherwood is director. Dr. C. Hampson Jones, commissioner of health, and Dr. Sherwood have been working on plans for such a hospital for some time, and maternity clinics have been in operation in northwest and south Baltimore for several months. These clinics are under the direction of Dr. Susanne Parsons and Dr. Helen Evarts. The clinic system is only a part of the plan under which a maternity unit will be provided, if the health department's ideas are carried out. Such clinics will be developed in all sections of Baltimore city.

University of Maryland to Enlarge.—A new hospital group, designed to be one of the largest and most up to date in the country and incorporating the University Hospital, the nurses' home and the schools of medicine, dentistry and pharmacy in a single system, is to be erected by the University of Maryland at Lombard and Green streets, Baltimore. The main building will be eleven stories in height with a roof garden above. Plans call for a hospital of 300 beds, and ultimate expansion to 500 is contemplated. The nurses' home is planned to furnish accommodations for 200, with facilities for 300 students in the combined schools. The cost is estimated at about $1,250,000. When the project is fully developed, a unique feature will be an arrangement by which the most modern adjuncts of medical science will be placed at the disposal of rural practitioners through graduate and extension courses. It is planned to have traveling instructors, who will hold courses in rural communities and also to give the rural practitioner the opportunity to bring all special cases to the hospital. The institution will offer the medical practitioner the service which the agricultural college of the university now provides for the farmer. One of the principal objects of the enlarged institution will be to relieve the city's inadequate hospital facilities. Construction of the first portion of the group will be begun within the month and will cost approximately $250,000 when completed; erection of the second unit of the home is expected in about a year. The whole project will require several years for its development. The University Hospital is the oldest institution for the care of the sick in the state. It was opened in 1823 under the name of the Baltimore Infirmary, and has been enlarged fourfold by successive additions.

Personal.—Dr. J. H. Mason Knox, Jr., has sailed for France and with his family will make his home in Paris for the next year. Dr. Knox has been made general supervisor of the child welfare work of Europe under the Red Cross. ——Dr. Brice W. Goldsborough of Cambridge is convalescing at Stone Hospital, Parry Sound, Canada, from a major operation, performed by Dr. Howard A. Kelly, whom he was visiting at his summer camp at Maganatowan, Ontario. Dr. Goldsborough was on a canoe trip to Deer Lake when he became ill and an operation was imperative.——Dr. Warren N. Hoak, medical officer in charge of the U. S. Public Health Service, at Baltimore, while investigating a small glass vial, supposed to contain narcotics but containing trinitrotoluene, had a narrow escape from blindness or permanent disability when it exploded and the fumes spread upward to his face and eyes. Except that his eyes were slightly burned, no ill consequences resulted. The vial was picked up at Chincoteague, Va., and brought ashore with many others by a schooner for investigation.——Major Howard H. Bailey of the Army Medical Corps has been detailed under the National Defense Act as professor of military science and tactics at the Johns Hopkins Medical School. ——Dr. Hugh H. Young has arrived in Baltimore after a two months' trip to Europe. Dr. Young attended the International Medical Congress in Paris last month and read a paper on urology and roentgen-ray work. He also visited France, Germany, Belgium and England during his stay abroad.—— E. V. McCollum, Ph.D., professor of biochemistry at the Johns Hopkins School of Hygiene and Public Health, read a paper on "Relation of Diet to Dentistry" before the convention of the National Dental Association, which was held recently at Milwaukee.

MASSACHUSETTS

Appointment on Registration Board.—Governor Cox has appointed Dr. Francis X. Corr, Boston, as a member of the state board of registration in medicine, to succeed Dr. Augustus L. Chase, Randolph, whose term expired in July. Dr. Chase has been a member of the state board of registration in medicine for twenty-seven years.

MICHIGAN

Personal.—Dr. Walter L. Finton, Jackson, has been appointed chief surgeon of the Consumers Power Company, for the state of Michigan.

Upper Penninsula Medical Society.—At the twenty-fifth anniversary convention of the organization, Dr. Frederick McD. Harkim, Marquette, was chosen president by acclamation; Dr. Theodore W. Scholtes, Munising, was elected vice president; Dr. James B. Turner, Houghton, second vice president, and Dr. Addison D. Aldrich, Houghton, secretary. The 1922 convention will be held at Houghton. The society passed a resolution endorsing the plan for a permanent legislative committee, to be supported by voluntary contributions from members of the county societies of the state.

Cardiac Clinics for Schoolchildren.—The medical examination of Detroit schoolchildren last year showed that 1,000 children have at least a suspicious cardiac defect. In an organized attempt to provide proper equipment for the adequate treatment of children affected with heart disease, two meetings will be held, October 17. Dr. Robert H. Halsey, who has organized this work in New York City, has been invited to address an open meeting in the afternoon, on the subject of "Heart Disease in Schoolchildren—Scope of Problem and Method of Care"; and the Wayne County Medical Society, in the evening, on "Heart Disease in Children and the Treatment."

Heart Disease in Michigan.—More than one tenth of all deaths which occurred in Michigan during the first six months of 1921 are due to heart disease, according to a total of 2,776 deaths from organic heart disease reported to the state department of health for that period. This gives Michigan a death rate for this disease of 145.4 per hundred thousand population, which, though below the average rate of 150.4 for three years beginning with 1917, is still higher than any other disease death rate. Dr. Richard M. Olin, commissioner of health, states that "organic heart disease annually claims nearly twice as many victims as either tuberculosis or pneumonia, and yet many of the deaths from this cause are undoubtedly preventable or postponable."

MINNESOTA

Home for Tuberculous Children.—A three-story sanatorium is being constructed at Glen Lake, Hennepin County, at a cost of $160,000, which will be devoted exclusively to the care of tuberculous children. The basement will contain the school and playrooms, the girls' and boys' dormitories will occupy the first and second floors, and the third floor will be used for the care of infants and isolated contagious cases. The infants' department will be separate and inaccessible from the quarters of contagious cases. The south walls of the third floor will form a series of terraces to be used for heliotherapy. When completed, the building will be turned over to the county sanatorium management as a gift from the Citizen's Aid Society, which is a corporation organized and heavily endowed by the late George Henry Christian for the purpose, among others, of combating tuberculosis, and the building will be erected as a memorial to his wife, Mrs. Lenora Hall Christian.

MISSOURI

Personal.—Dr. Virgil W. McCarty, Kansas City, courteously stopped his automobile, August 17, to give two young men a lift on the way to Hillcrest Country Club. Later, Dr.

McCarty was found in a clump of bushes with his feet and hands tied. He had been robbed and beaten and his automobile stolen.

Four Year Medical Course for University.—The board of curators of the state university has decided in favor of establishing a four year course in medicine at the university. The board will prepare for presentation at the 1923 session of the legislature a bill to authorize and appropriate money for establishing the state hospital at Columbia, to be opened in conjunction with the medical school.

NEBRASKA

Personal.—Dr. Benjamin F. Williams, former head of the state hospital for the insane, Lincoln, has been appointed consulting director of the child welfare bureau of the state. This position was created at the last session of the state legislature. Dr. Margaret W. Koenig, Lincoln, will do field work for the bureau, which has general control of all delinquents and defectives wherever found.——Dr. Beverly A. Finkle, superintendent of the orthopedic hospital, has resigned to become prison physician. Dr. Jacob H. Matthai, Newberry, Mich., will succeed Dr. Finkle, and his work will also include the state home for dependent children.

NEW YORK

Medical Association of Central New York.—The fifty-third annual meeting of the association was held at the Buffalo City Hospital, Buffalo, September 9. Visiting physicians who presented papers were: Dr. Alfred C. Croftan, Chicago, whose subject was "Concerning a Group of Sugars that Is Well Tolerated by Diabetics"; Dr. George W. Holmes, Massachusetts General Hospital, "Roentgen-Ray Treatment of Thyroid Condition with Results"; Dr. Preston M. Hickey, Detroit, "Skulls" (with lantern slides), and Dr. Alfred E. Cohen, Rockefeller Institute, "Consideration of Heart in Acute Infection, and Treatment."

OHIO

Vaccination Required for Schoolchildren.—On the recommendation of the health commissioner, the board of education, Middletown, at its last meeting, revised the regulations regarding vaccination against smallpox, and hereafter will require successful vaccination of all children of any age entering school. This action was taken because of the common occurrence of the disease in Middletown.

PENNSYLVANIA

District Medical Meetings.—At the annual meeting of the fifth censorial district, held at Piney Mountain Inn, near Caledonia Park, Franklin County, August 25, Dr. McCurdy, Shippensburg, was elected president of the district for the ensuing term of one year. Dr. H. Lawn Hartmann was elected vice president, and Dr. Gibson Smith, secretary.——At the annual meeting of the fourth censorial district of the Pennsylvania State Medical Society, held at the Colonial Club, Harrisburg, the Dr. Robert E. Holmes golf cup was retained by the Harrisburg physicians, who defeated all contestants. The new officers elected are: Dr. Clarence R. Farmer, Lancaster, president; Dr. W. W. Taylor, Lancaster, vice president; Dr. Tobias C. Shookers, Lancaster, secretary. The tennis tournament was won by Drs. Edward M. Green, Pennsylvania State Hospital, and George B. Stull. Dr. Hugh Hamilton read his annual poem at dinner.

Philadelphia

Personal.—Dr. George Souwers of Georgetown, surgeon in the U. S. Public Health Service, was cut and bruised when the automobile in which he was riding collided with another at Gloucester, N. J., August 31.

Infant Mortality Lower.—Prenatal care of babies administered free by the department of public health is reducing the infant mortality rate, according to statistics announced by Director of Public Health Charles L. Furbush. In 1920, of the 2,881 infants born under the care of the department's division of child hygiene, sixty-eight died when less than 1 month old, constituting a death rate of 24 per thousand. Comparison with similar data for the entire city shows that 1,527 babies died during the first month of life, out of 43,547 born alive, making a death rate of 35 per thousand. The rate of death among the babies of prenatal cases under the care of the health department is one third less than that of the entire city.

SOUTH CAROLINA

Personal.—Dr. Kenneth M. Lynch, professor of pathology, Medical College of the State of South Carolina, Charleston has resigned from the faculty to become connected with a group clinic at Dallas, Texas.

TENNESSEE

The New Laboratory Building.—According to an agreement to pool their equipment and coordinate their personnel, entered into, Sept. 29, 1920, the several public health agencies operating laboratories in Memphis on September 1 moved into their new quarters in the university laboratory. Dr. William Krauss, professor of preventive medicine and hygiene in the college of medicine for many years, has been made director of the laboratories, and his salary will be paid jointly by the agencies interested, which include the malarial research laboratory of the U. S. Public Health Service, the West Tennessee laboratory of the state board of health, the department of bacteriology of the University of Tennessee College of Medicine, and the laboratories of the Memphis department of health. The plan of coordination has received the endorsement of Dr. Frederick F. Russell, director of laboratories for the International Health Board, who visited Memphis and investigated the possibilities of laboratory coordination and development.

TEXAS

Building for Physicians and Dentists.—A site has been purchased at Dallas for a building to be used exclusively by physicians and dentists, at a cost of $45,000. The funds have been raised by those who will occupy the building.

Report of University Health Service.—The University of Texas has employed a whole-time medical staff, consisting of four physicians, since Sept. 1, 1920. Complete physical examination is made of matriculants on entrance, and all subsequent services are reported on the same folder on which the examination is noted. These records are kept on file and furnish valuable statistics. Students are classified for athletics and other physical training according to conditions found in their examination. Special courses for physical training are prescribed for those found to have gross physical defects. Few exemptions were found to be necessary during the long session. The medical staff has established a system to improve the sanitation of all university buildings, grounds, fraternity and sorority houses, boarding and rooming houses, cafés, swimming pools, picture shows, and all other places where students congregate.

UTAH

State Medical Meeting.—The program of the twenty-seventh annual session of the Utah State Medical Society, to be held at Salt Lake City, September 13-15, under the presidency of Dr. Robert R. Hampton, shows the names of the following visiting physicians: Drs. Frank Hinman, San Francisco; Nelson W. Janny, Los Angeles; John R. Williams, Washington, D. C.; Daniel T. Quigley, Omaha; Roland E. Skeel, Los Angeles; Carlisle P. Knight, Washington, D. C.; Albion W. Hewlett, San Francisco; Isaac H. Jones, Los Angeles; Alfred C. Reed, San Francisco, and Emil Goetsch, Brooklyn. Because of the high class of subjects presented and the opportunity to hear physicians of widely distributed centers, the committee is extending an invitation to members of other state organizations who live near enough to Salt Lake City to make it convenient for them to attend the convention.

GENERAL

Appointment for Veterans' Bureau.—Major Arthur D. Dean, who held the chair of vocational education at Columbia University, was appointed, August 20, as assistant director for the newly created Veterans' Bureau, in charge of the rehabilitation division.

American Conference on Hospital Service.—The semi-annual meeting of the American Conference on Hospital Service, of which Dr. Frank Billings, Chicago, is president, will be held September 12-16, at West Baden, Ind., in conjunction with the twenty-third annual conference of the American Hospital Association.

Meeting on Occupational Therapy.—Announcement has been made of the fifth annual meeting of the National Society for the Promotion of Occupational Therapy to be held, October 20-22, at the Southern Hotel, Baltimore. The officers of the association are: president, Dr. Herbert J. Hall, Marble-

head, Mass.; vice president, Dr. C. Floyd Haviland, Middletown, Conn.; treasurer, Miss Marion R. Taber, New York; secretary, Louis J. Haas, White Plains, N. Y.

Appointment of Consultants to Tuberculosis Association.—In a nation-wide movement to make available expert service and knowledge to individuals and communities afflicted with tuberculosis, the National Tuberculosis Association has appointed a number of present and former active members of the Boston Tuberculosis Association to serve in the respective districts in which they live. The three specialists named in clinical tuberculosis, are: Dr. Edward Otis, professor of pulmonary diseases and climatology at Tufts Medical School; Dr. Vincent Y. Bowditch, medical director of Sharon Sanatorium, and Dr. John B. Hawes, second president of the Boston Tuberculosis Association. In accordance with this arrangement, when any local tuberculosis association plans to hold an institute or a survey with clinics, it may call upon one or more of these consultants for expert advice.

Cancer Week.—The American Society for the Control of Cancer has announced a seven day campaign to be designated "Cancer Week," October 30 to November 5. The purpose of the movement is to reach as many persons as possible in the United States and Canada, with the vital message of cancer control. Committees have been established in all parts of these countries, lecture bureau made up of interested and authorized speakers, and the campaign will be conducted through lectures, the distribution of literature, and publication of many articles in professional journals and in the lay press. Medical schools and colleges will be asked to cooperate in the campaign by devoting at least one lecture to the subject of the prevention and control of cancer, and by carrying appropriate cancer announcements and cancer control information in any bulletins or circulars which may be sent out at that time. Other organizations asked to participate are: hospital nurses' training schools, nurses' organizations, schools of health officers, insurance companies, federation of women's clubs, all welfare and social service organizations, chambers of commerce and boards of trade, manufacturers' and merchants' associations, labor unions and trades councils, ministerial and other clerical groups, church clubs, Rotary and Kiwanis clubs, fraternal orders and lodges, Y. M. C. A., Y. W. C. A., Knights of Columbus, civic clubs and any other local organization which may exist.

LATIN AMERICA

Monument to Dr. Núñez.—Funds are now being collected in Havana in order to erect a bust of Dr. Emiliano Nuñez, at the entrance to the Hospital "Nuestra Señora de las Mercedes." Dr. Núñez was a leader in hospital work in Cuba.

Typhus in Chile.—The *Revista Médica de Chile* cites the figures for 1920 in respect to the occurrence of typhus. There were 7,939 cases recorded throughout the whole of Chile, with a mortality of 19.90 per cent. In Santiago alone there were 1,457 cases, the mortality 31.64 per cent.

New Cuban Journals.—Two new medical journals have appeared recently in Cuba. One is a quarterly, the *Revista Médico-Quirúrgica de la Policlínica Nacional Cubana*, its editor being Dr. Nicolás Gómez de Rosas, one of the most prominent Cuban surgeons. The other, *Médica*, is published in Matanzas and the editors are Drs. M. E. Dihigo and Oscar Forest.

Bacillary Dysentery in Chile.—C. Garces Baeza relates in the *Revista Médica de Chile* that he isolated six different types of bacilli from the stools of fifteen of thirty-eight cases of suspected dysentery. Some were very virulent and toxic and yet they did not correspond to the Shiga-Kruse type, and they differed from each other in fermenting and agglutinating properties although otherwise closely alike. The fifteen cases with positive findings included several children. The bacilli reproduced the disease in rabbits, not in dogs and guinea-pigs.

Memorial to a Physician in Pan-American Hall of Fame.—There was unveiled recently in the Hall of the Americas of the Pan-American Union, Washington, D. C., a marble bust of Dr. Hipolito Unanue. The buât, which represents Peru's contribution to the gallery of Pan-American great men, is the work of Mrs. Sally J. Farnham and stands on a pedestal at the left of the entrance to the hall. Dr. Unanue was chief protophysician and founder of the Medical Society of Lima. He was born at Arica, Aug. 13, 1755, and died, July 15, 1833. He distinguished himself as a philosopher, mathematician, philologist, orator, journalist, financier, revolutionary leader, statesman, occupying the highest positions in public life in his country. Both the Peruvian Ambassador and the Secretary of State of the United States called attention to the deserts of this Peruvian leader, who, the ambassador stated, had been an honorary member of several learned societies of New York and Philadelphia.

FOREIGN

Prize to Brachet.—The quinquennial prize for the best work in the medical sciences, offered by the Académie de Médecine at Brussels, has been awarded to Prof. A. Brachet of the chair of anatomy and embryology of the University of Brussels for his publications on topographic anatomy.

Colony for Insane Delinquents.—The Belgian government has created at Reckheim what is to be called the asylum colony for criminals who have become insane while serving a prison term, and for persons accused of crimes committed during mental derangement. It is intended only for the docile insane.

Sanatorium for Grave Nervous Diseases in Ex-Soldiers.—A psychiatric exchange describes the inauguration recently at Arosio, Italy, of the institution for care of shell-shocked and paralyzed soldiers. The establishment is the gift to the state of Senator Borletti and is said to be unique in its line. Dr. E. Medea, professor of nervous and mental diseases at the University of Pavia, is in charge of the institution.

Heliotherapy Institute Planned as Memorial to Codivilla.—The Rizzoli Institute of Bologna has agreed to purchase the land and maintain this sanatorium planned as a memorial to the great Italian surgeon, and funds are being collected to erect and equip the building. It is to have a capacity for 200 beds with arrangements for orthopedic treatment of outpatients. It aims to realize one of Codivilla's dreams for the welfare of poor children, which he did not live to see carried out.

Personal.—A meeting was held at Brussels recently to pay public tribute to the work of Prof. P. Heger in various welfare organizations. There were no formal addresses, but two children and one disabled soldier presented flowers and over 400 persons thronged to shake hands with him.——As Prof. L. Mangiagalli retires this year from the chair of obstetrics and gynecology at Milan, having reached the age limit, his friends are collecting a fund for a Mangiagalli foundation for graduate scholarships at Milan.

Expression of Gratitude by Vienna University.—The *Wiener klinische Wochenschrift* states that the University of Vienna has created an honorary title to express publicly its gratitude to those who have aided in relieving the material distress of the university during the last few years. The honorary title has been conferred on Dr. F. Pérez, the ambassador from Argentina; Dr. Ferrière, the president of the International Red Cross, and Dr. F. Boas of New York, besides the ambassadors of Great Britain and Sweden, Mr. Herbert Hoover, the president of Argentina and an English woman, Lady Mary Murray.

The Insane Asylums in the War Region.—An illustrated article in the supplement to *Encéphale* states that the large asylums at Armentières and Bailleul were destroyed by the invaders, but the inmates were removed in time and scattered through other French asylums. The asylums at Lommelet and Esquermes also had to be evacuated, but the buildings escaped destruction. The asylum at Prémontré was invaded by the Germans, Sept. 1, 1914, and even after the Germans had been driven back, it was still within the German lines. The medical staff of the asylum had been called to the colors at the outbreak of war, and the whole charge of the asylum fell on the lay director, M. Letombe, who was also the mayor of the community, and his son. In March, 1917, the Germans ordered the evacuation of the asylum, sending the Letombe family farther back into their lines, and distributing the insane inmates in Belgian asylums. Of the 1,300 inmates, 539 had died in the interim. The insane were repatriated in 1918, and those buildings at Prémontré which had not been entirely demolished have been restored to some extent, and in 1919 received back some of their former inmates.

Deaths in Other Countries

Dr. **A. Sánchez Cruz,** a prominent pediatrician of Santiago, Chile.——Dr. **J. del C. Cardenas,** in charge of the clinic for tropical diseases at Bogota.——Dr. **R. Fajardo Vega,** also of Bogota.——Dr. **J. R. Ewald,** formerly professor of physiology at Strasbourg, aged 66.——Dr. **O. Jolasse,** at one time medical director of the general hospital at Hamburg, aged 66.——Prof. **H. Krause,** a laryngologist of Berlin, aged 73.

Government Services

Assignments in Navy

Capt. Frank L. Pleadwell, Naval Medical Corps, has been detailed as assistant to the chief of Bureau of Medicine and Surgery, Navy Department, at Washington, D. C. Lieut.-Com. Eugene A. Vickery, Naval Medical Corps, has been detached from duty at the naval hospital in Boston and ordered to the Asiatic station for assignment to duty.

Colonel Forbes Makes Tour of Inspection

Col. Charles R. Forbes, director of the Veterans' Bureau, has left Washington, D. C., for a field inspection of the various agencies of the bureau. His first stop will be in the Chicago district. Other district offices to be examined include Minneapolis; Helena, Mont.; Portland, Ore.; San Francisco; Los Angeles; the South Atlantic states, and the hospitals in New Mexico and Arizona. It was announced that cases of hospitalization and compensation in the future would be settled in district offices except in cases in which the claimant desires to appeal to Washington. Before his departure, Colonel Forbes canceled vacations of 500 employees of the medical department of the Veterans' Bureau because of the rush of business.

Order of Rising Sun Conferred on Colonel Wilson

Col. James Sprigg Wilson, Medical Corps, U. S. Army, has been presented by the Japanese government with the Order of the Rising Sun in acknowledgement of services rendered as president of the Interallied Sanitary Commission in Siberia. Dr. Wilson, who is now on duty as a surgeon of the Fifth Corps Area at Fort Benjamin Harrison, Ind., organized the medical department of the American Expeditionary Forces in Siberia, in Manila, and accompanied the expedition to Siberia, where he served as chief surgeon for a year.

Reduction in Personnel of Naval Reserve Force

Medical Naval Reserve Officers, according to the announcement made by the Surgeon-General of the Navy, will be reduced from 1,550 to 300. This reduction was made on recommendation of the Navy's General Board, and commandants of all naval districts have been instructed to report the names of reservists under their command recommended for retention. One of the reasons given for the radical decrease in the number of naval reservists is the lack of adequate training facilities. Another is the retainer pay given reservists of the Navy, which ranges from $12 to $1,000 a year. Another announcement was to the effect that officers of the staff corps of the reserve force other than those of the Medical Corps and the Supply Corps will not be enrolled in the Naval Reserve Force on the termination of the current enrolments.

Reduction in Personnel of Public Health Service

The transfer of the hospitalization and medical care of former war veterans from the U. S. Public Health Service to the new Veterans' Bureau is resulting in a large reduction of personnel in the U. S. Public Health Service. It is estimated that by the time this transfer is completed the U. S. Public Health Service total of officials and surgeons will be about the same in strength as previous to the war. Recently a formal call was issued by Director Charles R. Forbes on Surgeon-General Hugh H. Cummings as provided in the Veterans' Bureau law recently passed by Congress, because of the fact that the U. S. Public Health Service has been desirous of keeping under its control all of its personnel. It is said that efficient handling of the veterans' claims necessitates a separation of the medical work from the civil treatments that have been handled by the U. S. Public Health Service.

Survey of Staff in Veterans' Bureau

It is announced at the offices of the newly created Veterans' Bureau that no new appointments on its medical staff will be made until a survey shall have been completed of the personnel transferred to this bureau from the U. S. Public Health Service, Bureau of War Risk Insurance and Rehabilitation Division of the federal Board of Vocational Education.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 15, 1921.

Criticism of the London Clinics for Venereal Disease

Dr. F. N. K. Menzies and Brevet-Col. L. W. Harrison, M.B., have submitted to the London County Council a report on the joint venereal diseases scheme for London and the home counties, which at the end of 1920 had been in operation for four years. The premises of the London clinics are the subject of criticism. With only a few exceptions they are located in the outpatient departments of the various hospitals. This arrangement frequently interferes with the efficiency of the clinic for various reasons, the chief of which are that (*a*) the premises are available only at certain hours on certain days during the week, and it is impossible to arrange for intermediate treatment of both sexes to be carried out at all hours, and (*b*) the rooms of the average outpatient department are not arranged conveniently for the work of a venereal disease clinic. The internal arrangement of most of the London clinics make for inefficiency or waste of man power, or both. "Assuming that maximum efficiency is the goal, and there may be no other under the public health venereal disease scheme, more men are required for the conduct of the average London clinic than would be necessary if the premises were designed for the special needs of venereal disease work." Apart from the St. Thomas's clinic, which is open for treatment from 8 a. m. till 10 p. m. daily except Sundays, only seventeen of the twenty-seven clinics in London are open on Saturdays, and only one of the seventeen provides an evening session on this day. There are no clinics available for any form of treatment on Sundays. On these points the report says: "The question as to whether the days and hours of the clinics are conveniently arranged for the various classes of patients, and sufficiently numerous for the demands made on them at present, required careful consideration, and many inquiries were made in a variety of directions on this subject. With regard to the provision made for diagnosis and treatment, the facilities available on Saturdays for these purposes are inadequate; considerable extra provision should be made on this day as soon as possible. The provision of clinics on Sundays for diagnosis and treatment of new cases is not advocated at present. Certain of the clinics suffer from overcrowding, and the large number of patients in attendance per session tends to inefficient treatment." Among the methods suggested for overcoming the overcrowding difficulties are: (1) increase in the number of clinics; (2) increase in the number of sessions, and (3) increase in the number of hours daily when treatment is available. The last method is the one which has been adopted at St. Thomas's Hospital, and is undoubtedly the best of all for meeting the difficulties indicated.

The Ministry of Health

The second annual report of the ministry of health has just been issued. It sounds an optimistic note in regard to the establishment by the League of Nations of an international health organization, which was approved at the first session of the assembly of the league in December, 1920. This is considered to be destined to forward the work of safeguarding the health of the people in this and other countries in a number of directions. The organization will have the duty of bringing administrative health authorities in different countries into closer relations, and of securing rapid exchange of information and of action against the attacks of diseases which transcend national boundaries. Pending the

effective establishment of the new organization, a provisional committee, on which the department is represented, has been set up. The assistance of the council of the league has already been invoked in assisting the Polish health authorities with the financial and sanitary measures required to check the spread of typhus in Poland.

Venereal Diseases

The number of treatment centers for venereal diseases opened during 1920-1921, and the number of patients dealt with for the first time increased by twenty-three and 7,000, respectively. The attendances at centers rose to 1,489,000, as against 1,003,000 in 1919, and 488,000 in 1918. The amount of the grants in aid of venereal diseases schemes paid during the year was $1,637,975, or approximately $500,000 more than in 1920. Schemes are now in operation for gratuitous diagnosis and treatment in every county. The number of patients dealt with for the first time amounted to 105,000, of whom 19,500 were found not to be suffering from venereal disease. The number found suffering from syphilis was 43,000, from gonorrhea 40,000, and from soft chancre 2,500.

Maternity and Child Welfare

The number of centers rose during the year by 183 to a total of 1,780, of which 1,068 were provided by local authorities and 712 by voluntary agencies. The health visitors at work increased from 3,000 to 3,215, the time devoted by them to these functions being approximately equivalent to the whole time of 1,617. A somewhat larger proportion of births in London and in county boroughs was attended (during 1919) by registered midwives; and their assistance is now estimated to be available to 68 per cent. of the rural population. The grant distributed by the department in 1920-1921 in aid of this service was $4,369,250 (for England and Wales), of which $3,369,620 was paid to local authorities and $999,630 to voluntary agencies—an increase of more than $1,500,000 over the amount paid in 1919-1920. The infant death rate fell from 89 per thousand births in 1919 to 80 per thousand births in 1920, the lowest point yet reached in the recorded figures for England and Wales.

The National Insurance Act

About 12,300,000 persons in England are now entitled to medical benefit under the national health insurance acts. The annual cost of this service is about $40,000,000, of which nearly half is defrayed by the government in the form of statutory contributions and special grants. Steps have been taken to promote the efficiency of the treatment thus made available to insured persons by the appointment of both divisional and regional medical officers, whose primary duty is to advise on cases of incapacity for work referred to them either by insurance physicians or by approved societies.

PARIS

(From Our Regular Correspondent)

Aug. 12, 1921

Mortality Statistics in France and the United States

At the forty-fifth congress of the Association française pour l'avancement des sciences, held at Rouen, August 1-7, Monsieur E. Cacheux presented an interesting communication concerning the possibilities of reducing the mortality rate in France. After recalling the encouraging sign presented by the most recent vital statistics in France; namely, a considerable excess of births over deaths, Cacheux showed that a comparison of the mortality rates of France and other countries of Europe and America was not at all favorable to France. In the United States especially, cities have a mortality rate lower than that of French cities. To be sure, it may be urged that the mortality rate is always lower in new cities. But Cacheux is not content with this explanation of the mortality rate of American cities. He thinks it must be attributed in part to the strict enforcement of sanitary regulations, not only in the home but also in commercial and industrial establishments.

Physical Education

At the same congress, Dr. Langlois, an associate professor at the school of medicine of the University of Paris and a well known physiologist, pointed out that the application of the law with respect to physical education, which is awaiting a final vote in the French senate, cannot give satisfactory results, unless: (1) a body of instructors in physical education is formed whose moral and intellectual condition and financial position will permit complete assimilation with the rest of the instructional corps, and (2) the body of school physicians has sufficient knowledge of the problems of physical education and of the advantages and dangers of various sports according to the age and constitution of the subjects, so that the school physicians can assume scientific direction of physical exercises in collaboration with the technical instructors. High school and college physicians should belong to the administrative council of these institutions and should have a voice in deliberations.

Book Production in France in 1920

Monsieur Delalain has an interesting article in the *Bibliographie de la France* on the book production of France in 1920. From his investigations it is evident that the book trade for 1920 shows a satisfactory increase. As compared with 5,361 books registered in 1919, 6,315 were registered in 1920. The increase affects mainly educational books, works on history and art, and medical books.

Endowment in Support of Scientific Research

Monsier Edmond de Rothschild has recently contributed 10,000,000 francs for the endowment of an institute, the purpose of which is to aid young scientists and to furnish research workers with the instruments and apparatus they may need to carry on their work. This new foundation will be administered by a scientific council composed of delegates from the most important scientific institutions devoted to the study of physics and chemistry. This council will include two representatives of the Academy of Sciences—one, each, for the sections of chemistry and physics. The Collège de France, the Museum d'histoire naturelle, l'Ecole superieure des mines, the Faculté des sciences du Paris, the Faculté de pharmacie, the Ecole normale superieure, the Conservatoire national des arts et metiers, and the Ecole polytechnique will each have one representative. There will also be several members elected by the council itself, so that the total number of members in the council will reach approximately twenty-five. The new foundation will have at its disposal each year 600,000 francs to be distributed among investigators. In accordance with the terms of the endowment 300,000 francs must be distributed in small amounts; the balance may be bestowed in the form of one or more lump sums for costly researches of great importance. Educational establishments and government laboratories will not share in the grants offered by the foundation, as these will be reserved exclusively for the use of independent investigators in the field of physics and chemistry.

Mental Derangement and Moving Picture Exhibitions

The *Journal des praticiens* protests energetically against the exhibition in the kinematographic theaters of Paris of a picture the leading character of which is a man suffering from paretic dementia. All the symptoms of such patients are

vividly shown: delusions of grandeur, flight of ideas, maniacal excitement, change of personality, remission, murder, internment and sudden death by apoplexy. An alienist must surely have collaborated in the staging of the picture. The manifestations of the disease are admirably represented, but the objection is made that the very talent of the actors constitutes a danger for the mental equilibrium of predisposed spectators.

The Plague in Madagascar

The plague has made its appearance in Madagascar. Tamatave was invaded several months ago and now Antananarivo is suffering from an attack.

MADRID

(From Our Regular Correspondent)

July 21, 1921.

Nine Deaths from Tetanus in the General Hospital of Madrid

In the General Hospital of Madrid which, from a surgical standpoint, is the most important since the best surgeons operate there, there have occurred among the operative cases nine deaths. As happens in all such cases when the tetanus germs are transmitted by the suture material, catgut, the patients were already convalescent or had been discharged as cured when the tetanic symptoms appeared. A most careful examination of all the material employed and repeated analysis of the catgut did not show a single tetanus bacillus among the enormous amount of surgical matter studied. However, the fact that tetanus occurred in several clinics that had been furnished catgut at about the same date seems to indicate that the germs were inside the catgut. As might be supposed, the surgeons have taken this happening very much to heart. Until now, they had been well pleased with the chemical sterilization of catgut, which had been used for a long time in the hospital without any untoward accident heretofore.

The Medical Societies and the School of Medicine of Madrid

The medical societies of Spain, headed by the Guipuzcoa Society, are showing great hostility toward the Medical School of Madrid, and the newspapers have published recently a violent protest signed by the medical society of Guipuzcoa. This is the outcome of the discussion on the licensing of foreign physicians to practice in Spain, to which I referred in a previous letter.

Many Spanish physicians were displeased at the action taken by the French government in expelling from France several Spanish physicians who had served in the French army during the war. A former cabinet took cognizance of the matter and issued some regulations aimed at preventing an increase in the number of foreign physicians practicing in Spain. The medical societies of Guipuzcoa and Navarra, which lie nearest to France and therefore have in their jurisdiction the largest number of foreign physicians, were amazed on finding out that the same minister who had signed the previous regulation was, on the other hand, authorizing several foreign physicians to practice in Spain. Thus the trouble began. In the meantime, several foreign physicians who have had clinics in Spain for a long time and consider this their adopted country and have made a position for themselves were compelled to take rather unwelcome steps in order to continue practicing. The law requires that foreign physicians must be examined every six years, but this measure has never been enforced. Now, however, some foreign physicians were compelled to take this examination. The Medical School of Madrid, not influenced by the xenophobia prevailing at present in the provinces of Guipuzcoa and Navarra, contented itself with following strictly the minister's orders when it came to examine the foreign physicians, a total of five, in the various subjects. It showed so much lenience that the medical societies took for granted that the Madrid professors were making sport of the law. The societies now claim that the whole procedure lacks validity, as no examination was held in premedical subjects. The school authorities replied to this that they were not concerned with premedical examinations, but just carried out their instructions. As regards this part of the controversy, no objections can be raised to the school authorities' behavior. It must also be admitted that the five foreign physicians have complied literally with the regulations in force and therefore they are legally authorized to practice in Spain for a period of six years.

The protests from the medical societies of the border provinces as to a display of severity, just in this one case, do not seem to carry much weight. They have overlooked persistently the deficiencies of the Medical School of Madrid—after all, the best of all Spanish medical schools—until their economic interests were affected. It is a fact that the Madrid Medical School, as all the others, is infiltrated with political influence. Some professors are teaching subjects without having shown previously their ability to do so; the moral sense of other professors is so obtuse that they even boast of not having had one single student fail in the examinations during their many years of teaching. If in the present case the school authorities did not show much severity, it must be admitted that the occasion was not very appropriate, as the foreign physicians examined were already practicing their profession in the most brilliant way. The medical societies that are now raising such an outcry could have rendered a truly patriotic service if they had exerted their influence before in trying to bring about improvements in the appointing system, in order to secure a better personnel for medical schools in general.

BUCHAREST

(From Our Regular Correspondent)

July 30, 1921.

Ten Years' Experience with Antitoxin in Bulgaria

From a recent report presented by the chief sanitary board of Bulgaria, we learn that during the ten year period 1910-1920, 10,134 cases of diphtheria were notified, of which 2,713, or about 25 per cent., terminated fatally. Of the total notified cases, antitoxin was given in 6,474, and of these, 594 persons, or about 11 per cent., died, while in 3,660 cases not treated by antitoxin there were 1,768 deaths—a case mortality of no less than 46 per cent. In addition to the 6,474 cases treated curatively, 16,906 were treated prophylactically with antitoxin in households invaded by diphtheria, and of these seventy-three persons subsequently were attacked by the disease, twenty-six of the cases proving fatal. In the two classes thus treated curatively and prophylactically, numbering together 23,380, only twenty-four instances of abnormal after-effects were noted, none of which, however, had a fatal termination. These after-effects comprised eight cases of antitoxin rashes, four of erythema, and two of roseola; three were instances of local inflammation at the site of the injection, and four of abscess; one patient had a painful knee-joint, one had pain in the leg and swelling at the foot, and one had albuminuria.

The Spread of Typhoid Fever Through Conveyance by the Hands

Dr. Schmidt of Marosvasarhely recently made an address on the different ways which serve the spreading of typhoid fever. In his experience of thirty-eight years, he has observed numerous cases of typhoid fever in Transylvania (the province formerly Hungarian but now a part of Roumania), and thinks that the dangers of impure water, of well con-

tamination and of inundations have been greatly exaggerated. In his opinion the conveyance of germs is principally effected by the hands of patients recently recovered from the disease, that is, bacillus carriers, who are still voiding bacilli in their stools. If the hands are not washed after each passage, they deposit the microbes on everything they touch, and if such patients are called on by their occupation to handle foodstuffs, as in the case of cooks, milkmen, waiters, butchers, grocers, bakers and the like, the spread of the disease may reach an incredible extent. For this reason Dr. Schmidt urged the establishing of stations in the large towns of Transylvania where typhus convalescents would be controlled for the period of one year, during which time they would be forbidden to deal with foodstuffs if found containing typhus bacilli. Recalling the fact that typhoid fever claims yearly in Transylvania from 1,000 to 1,200 victims, Dr. Schmidt hoped that this view, which is already generally accepted in the western states, might become more widely spread among the public, as it would result in a great diminution in the disease. He urged that explanatory circulars be posted in all public places, when they would lead to useful results, and further, that a dictation exercise on this subject should be set in the schools, as done eight or ten years ago in France, on the advice of Dr. Rondlet.

Infectious Diseases at the Places of Recent Massacre in Turkey

From different parts of the Turkish battle front, where the recent terrible massacres took place, comes the alarming news of the outbreak and spread of different infectious diseases among the destitute victims. In view of the excessive heat that prevails throughout the Balkans now, it is probable that the sanitary prospects are not at all satisfactory. Among the diseases most prevalent are dysentery and typhoid. The Greek troops fighting the Turks are carrying means for sterilizing drinking water, and therefore in the lines of the fighting Greek army infectious diseases, conveyed by contaminated drinking water, are relatively scarce. Not so with the Turks, who do not have sufficient means to bury their dead soldiers promptly. Sometimes corpses remain in heaps for weeks, the pestilent odor being carried by the wind miles distant. To this is added the excessive heat, in consequence of which water is very scarce, the wells are dried out, and there is general want of water even in hospitals and other sanitary institutions. The soldiers do not get water for washing. The drinking water is taken from rivers and lakes, which are polluted. From these unhygienic conditions not only the fighting troops but also the population behind the front are suffering. Measles and smallpox are claiming hundreds of victims among the children. These conditions are aggravated by the great want of surgeons and skilled nurses. The central authorities and the charitable organizations in Turkey are doing everything possible to help the sufferings of the civil population. They send them medicines, foods, Red Cross physicians and nurses.

A Fatal Error

A young woman met a tragic death in a Bessarabian village recently under painful circumstances. She was suffering from intense heartburn and went into a druggist's shop to obtain a remedy. The proprietor of the establishment was suffering from a severe influenza, and was bedridden, his assistant was gone for lunch, and therefore, in view of the urgency of the case, the druggist's wife proceeded upstairs and asked him what she was to give. He told her to tell his son to dispense 50 gm. of sodium bicarbonate. She did so and pointed to a bottle which she thought contained the bicarbonate. The boy did as requested, and the patient left with the drug. Shortly afterward the druggist suspected that his son might have dispensed from the wrong bottle, and on getting up, found to his horror that his son gave barium carbonate instead of sodium bicarbonate. The druggist sent his assistant to the patient's house, who found that she had taken from the powder, and gave an emetic of salt and water. The unfortunate woman died shortly after. A verdict was recorded that the death was accidental. The druggist died fourteen days after the accident from pneumonia complicating his influenza attack.

VIENNA

(From Our Regular Correspondent)

Aug. 1, 1921.

Restriction of the Number of New Medical Students

The dean of the medical faculty of Vienna has issued an order by which the number of new students eligible to take up the study of medicine will be limited to 400 for the coming winter term. This is chiefly due to the precarious conditions prevailing in the dissecting rooms. While at first this order encountered serious objection, it is just to admit that the actual conditions make it imperative to restrict the number of the younger students. The Vienna medical faculty was always proud of its numerous foreign guests. These were mostly students of higher degrees, or graduates who desired to obtain, so to speak, their finishing touch at this seat of teaching. And now also the authorities make every endeavor to retain for Vienna its old standing as a medical center. But they must also make every endeavor to enable young students to obtain the best possible training. Formerly, when no more than 150 or 200 new students took up the study of medicine in a term, it was an easy matter to accommodate them. Last term more than a thousand students applied for matriculation. Difficulties arise at the outset of the medical curriculum, for there are not enough cadavers available for the teaching of anatomy to such numbers of students, as explained in my previous letter. Furthermore, the study of obstetrics is at present also handicapped by the abrupt drop in the number of patients applying at the maternity clinics or wards. As there does not exist any possible means to increase the number of cadavers available for teaching purposes or to obtain the required cases of childbirth, the only method to insure adequate instruction of the students is adaptation to the limited means, or, in other words, the "numerus clausus." This restriction does not extend to the teaching of advanced students or to graduate work. On the contrary, the influx of such men is always welcome, and the faculty has organized a series of graduate courses of four weeks each, and covering the whole field of medical knowledge, being of the very latest, most up-to-date kind. The restriction has been viewed unfavorably by a number of eminent men, who think it will only deter others from flocking to Vienna, and because they suspect more political than practical causes for this novel departure. They are, however, by far outnumbered by men holding the opposite view.

Reestablishment of the American Medical Association of Vienna

At the outbreak of the war, American physicians staying in Vienna thought it advisable to dissolve their organization, the American Medical Association of Vienna, which had been of excellent service to all English speaking students in the city. The organization had held a high position among physicians and professors here, and in fact it had "run" nearly all the courses delivered in English here. Now again a number of physicians from the United States have assembled here and the old American Medical Association of Vienna has been recalled into existence. Some of the old functionaries have again taken up their office, and in a short time the old conditions will be found again. The Associa-

tion endeavors to reestablish the scientific and social contact between the professions of American and Austria, and to enable such foreign physicians as desire to work here to get the maximum of benefit from their stay. The dollar is at present valued here at between 800 and 1,000 kronen, and a man can find excellent board and lodging for less than a dollar a day. The courses are rather more expensive than formerly.

Increase of Salaries of Professors and Assistants of the Faculty

Following the constant decline of the exchange rate of our money, the national assembly has thought it fit to increase the salaries of all clinical teachers in such a degree that they are paid at the same rate as state officials of the civil service. The lowest salary will be 89,000 kronen (about $100) a year, the highest 150,000 kronen (less than $200 a year). But it must be kept in mind that this sum is sufficient here for the modest upkeep of a small family. Furthermore, the clinical teachers will be entitled to obtain from the money paid by the students for the classes and courses up to 50 per cent. but not less than 15,000 kronen nor more than 100,000, the remaining going to the fund of the university. In special cases, when eminent men are called from abroad, or when there is danger that foreign universities might induce eminent teachers to leave Vienna for good, an increase of payment might be arranged. The assistants of the clinics are paid salaries ranging from 25,000 to 80,000 kronen a year besides board and lodging, so that their economic position is now satisfactory. In order to increase the income of the university, the fees for study have been raised to 10 kronen a week for nationals, and it is already announced that the figure will be raised to 30 kronen during the coming winter term.

Demand for Free Choice of Physician in Sickness Insurance Clubs

The profession has taken an important step forward in informing the general public what an advantage it means to the person insured under the national insurance against sickness, if the patient is entitled to select his physician and not to be forced to submit to the treatment from a man whom he may distrust or at least not exactly trust. As about 60 per cent. of all earning persons are in the krankenkassen or compulsory sickness clubs, this appeals strongly to a large proportion of the population. The arrangement between the sickness society (krankenkasse) of the state officers and the medical organization mentioned in a previous letter is working so satisfactorily—taking both parties—that this argument is a most formidable weapon in the hands of physicians. The difficulty lies in the peculiar political position of this country. The krankenkassen are in the hands of one of our political parties—we are favored with three large political groups—and the appointments of physicians is often exercised from party views. If free choice is possible, then an imporant weapon and influence would be lost by the party now controlling the sickness clubs. Therefore, these centers try to nullify all efforts of the nature mentioned above, and point always to the financial difficulties of the problem. The profession, on the other hand, points out that it is quite unnecessary for these krankenkassen to accumulate such large funds as are visible in their yearly reports. Better compensation for the physician is possible, they contend, without any extra burden on the insured persons, and the example given by the "free choice" sickness club of the state officials will no doubt prove a most attractive argument. The profession is demonstrating in short articles in the papers as well as by speaking at meetings, that there is only one way of making both parties find their interests looked after, and that it must be "free choice of the physician" in the future.

BERLIN

(From Our Regular Correspondent)

Aug. 8, 1921

Occultism

A fondness for occultism and spiritism is evidence of the tendency toward mysticism that has become more strongly apparent in Germany during the last few years. The Psychological Society of Berlin has therefore taken it on itself to subject some of the so-called occult observations to a careful test. Such action was regarded as necessary lest "science" should be accused of neglecting its duty in establishing and clarifying recently discovered "facts." The society proposes first of all to afford all persons residing in Berlin who consider themselves in possession of occult qualifications an opportunity of being examined by men of science who are acquainted with occultism, its methods and the sources of error pertaining thereto. For this purpose the society has appointed a committee, on which the famous psychologist, Professor Dessoir, and the neuropsychiatrist, A. Moll, have agreed to serve. These are the questions proposed by the committee as bearing on the matter in hand: (1) Is there such a thing as clairvoyance—either as to time or space? (2) Is there such a thing as telepathy; that is, transmission of thought without the mediation of the generally recognized means of communication? (3) Is there such a thing as telekinesis; that is, are there persons who are able to move ponderable bodies without the use of known mechanical forces? (4) Is there such a thing as materializations of the dead or other materializations? Are there persons from whose fingers or from whose mouths tangible or visible substances develop which take the form of parts of the human body or even of whole bodies and finally disappear without leaving a trace? An article by Sommer, professor of psychology and psychiatry in Giessen, entitled "The Supervision of Mediums in the Realms of Occultism and Spiritism," and appearing in No. 23 of the *Deutsche medizinische Wochenschrift*, deals with the same topic. Sommer criticizes the observations found in the book of the Munich neurologist, Dr. von Schrenck-Notzing. He offers to receive gratis in his private clinic any medium proposed by von Schrenck-Notzing with the view to examining such medium, in the presence of a committee made up of members selected by the two investigators, in accordance with the method that he has himself worked out.

Use of Motion Pictures in Medicine

The attempts to use motion pictures for medical instruction have already led to remarkable results. Capillary circulation in lower animals, the movements of bacteria and protozoa, the influence of serodiagnostic and therapeutic reactions on micro-organisms, the motor disturbances brought about by surgical and neuropathologic affections, and many similar processes in the realms of physiology and pathology can, by means of motion pictures, be presented very clearly to students even though the natural objects, for one reason or another, may not be available. Recently, processes in the living organism, which for technical reasons, cannot be reproduced by films, have been represented by so-called trick films. The Munich gynecologist, Professor Döderlein, has had a film made from thousands of drawings, which reproduces the various phases of childbirth on a millimeter scale, as it were, and gives the student a much clearer and more exact idea of the normal birth process than he can get from the study of textbooks and phantoms. Attempts to secure film productions showing the details of operations have not until recently been very successful. Due consideration to which the patient is entitled; the necessity of not disturbing the aseptic measures connected with the operation; technical difficulties arising from the activities of the operator and his

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assistants occasioned disturbances during the preparation of the film which impaired the distinctness of the pictures. However, the need of securing better results has led to repeated trials. In the matter of film productions of operations it is not only a question of giving the students a clear idea of the technic employed, but it is also desirable to represent to surgeons in other cities, and especially in foreign countries, any new methods that may be employed, and to make the operations as clear to them as if they had seen them with their own eyes and had followed personally the various maneuvers and the results. A short time ago Dr. von Rothe, the chief surgeon of the surgical department of the Berlin-Wilmersdorf Municipal Hospital, exhibited in the Kaiserin Friedrich Haus an apparatus constructed after his own plans, and it would seem that the pictures taken with this apparatus mark a distinct advance. The apparatus is located above the operating table and takes in the field of operation from above. The light is thrown into the room from outside. Heretofore we saw, in motion pictures of surgical operations, the backs of the surgeon, the hands of the nurse and the face of the assistant, and occasionally we caught a few glimpses of the operative program itself. Rothe's apparatus, however, reproduces nothing but the technical maneuvers, which may be seen from the first incision to the tying of the last suture. The details of body cavities may be plainly seen, so that it is possible to follow every maneuver and to recogize every instrument and the special mode of its application. The apparatus is located in a tube projecting from the ceiling and is completely enclosed in a globular metal case. By means of a motor located outside of the room, the apparatus may be raised and lowered or turned and slanted in any direction. A telescope attached to the apparatus by a special mechanism makes it possible to adjust and focus it promptly. The film itself is driven by motor power, which may be turned on and off by means of a device operated with the foot. The apparatus is served from a small rolling table, the surfaces and handles of which are sterilized. At the beginning of the operation, the operator starts the apparatus by a few manipulations without delaying the operation in the slightest, nor is he in any wise dependent on the control of the apparatus or of the film. With the financial support of the Prussian minister of public instruction, the inventor has been able to establish an institute of his own in the Berlin Charité Hospital, where, by means of the new apparatus, films for purposes of instruction and investigation are being produced. Dr. von Rothe has exhibited films showing operative treatment on a fractured patella, a mamma operation, a gastro-intestinal operation and tenotomy in torticollis, all of which met with general approval.

Marriages

BENJAMIN LAWRENCE FREEMAN to Miss Dorothy Langdon Millen, both of Suncook, N. H., at Manchester, N. H., August 25.

ROBERT L. I. SMITH, Pasadena, Calif., to Miss Margaret Williams of San Francisco, at Saratoga, Calif., August 24.

CHARLES GRAFTON WELLER, Washington, D. C., to Miss Esther Curtis of Fond du Lac, Wis., August 6.

AUSTIN J. MINOR, Hazleton, Pa., to Miss Constance Brasefield of New York, at Hazleton, August 26.

MINOR FRANKLIN SEWELL, Lee Summit, Mo., to Miss Dorothy Silcott of Malta Bend, Mo., recently.

BERT BYRD PARRISH to Mrs. Hermione Merker, both of Kirksville, Mo., at Lancaster, August 28.

JOHN VINCENT MCANNICH, Brownsville, Pa., to Miss Jane Davis, Ligonier, Pa., July 30.

JOSEPH T. BELGRADE to Miss Mary B. Kengle, both of McKeesport, Pa., August 25.

Deaths

Russel S. Wingfield ● Richmond, Va.; Medical College of Virginia, Richmond, 1920; served as state inspector of the drafts boards in 1917; resident physician at Stetson Hospital, Philadelphia, 1918-20, when he left for Salonica, Greece, to take charge of the American Red Cross Children's Hospital, Kalamaria; died, August 20, from burns received while rescuing patients from a fire which destroyed the hospital, August 14, aged 27.

William Curtis Deane, New York; New York University Medical College, 1884; member of the Medical Society of the State of New York; member of the New York State Board of Dental Examiners in Oral Surgery and Pathology; secretary of the New York State Dental Society; dental surgeon at the New York City Hospital, 1902-1903; died, August 28, at his summer home at Douglaston, L. I., aged 65.

George Tilden, Omaha, Neb.; Albany (N. Y.) Medical College, 1867; member of the Nebraska State Medical Association; served as insanity commissioner for Douglas County from 1874 to 1914; on the staff of St. Joseph's Hospital, also acting assistant surgeon for the U. S. Army, and pension surgeon; author of several articles on insanity; died, August 16, after a long illness, aged 79.

Hansell Crenshaw ● Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1900; member of the American Medico-Psychological Association; formerly professor in the Atlanta School of Medicine; editor of "Medical Consensus"; during the late war served in France with the Emory unit; died, August 20, from Raynaud's disease, aged 44.

Fernando C. Robinson, Wyanet, Ill.; Rush Medical College, Chicago, 1863; life member of the Illinois State Medical Society; practiced in Wyanet for more than half a century; at one time coroner of Bureau County; also president of the Board of Health; died, August 23, from encephalomalacia, aged 84.

Harold Hill Jacobs, Akron, Ohio; Medical College of Ohio, Cincinnati, 1891; member of the Ohio State Medical Association; president of the Summit County Medical Association, 1917; surgeon to the City, Children's and Peoples' hospitals, Akron; died, August 31, from dilatation of the heart, aged 55.

William H. Blake, Shadeville, Ohio; Starling Medical College, Columbus, 1870; member of the Central Ohio Medical Society; Civil War veteran; practitioner in Shadeville for fifty years; died, August 16, in the Grant Hospital, Columbus, following an operation for appendicitis, aged 75.

Robert Lee Goodbred ● Mayo, Fla.; Atlanta (Ga.) Medical College, 1892; at one time chief physician at the Florida Hospital for the Insane; former state legislator; was found dead, August 16, from a pistol wound, presumably self inflicted, aged 48.

Albert W. Green, Utica, N. Y.; College of Physicians and Surgeons, Baltimore, 1884; in 1895 served as local surgeon for the West Shore Railroad; was elected president of Oneida Castle village; died, August 17, from cerebral hemorrhage, aged 68.

John M. Feland, Sharpsburg, Ky.; Hospital College of Medicine, Central University of Kentucky, Louisville, 1885; member of the Kentucky State Medical Association; died, August 14, from a complication of disease, aged 60.

John S. Sauvalle, New York; College of Physicians and Surgeons (Columbia University), New York, 1889; at one time consulting physician of the French Hospital, New York; died, August 28, following a brief illness, aged 60.

Arthur George Thompson ● Pine Bluff, Ark.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; sheriff of Jefferson County, 1894; died suddenly, August 18, in his office, from heart disease, aged 70.

William Grant Gilmore, Emlenton, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1894; member of the Medical Society of the State of Pennsylvania; died, August 16, from heat prostration, aged 57.

Julian T. Osbaldeston, Chicago; Michigan College of Medicine and Surgery, Detroit, 1901; member of the Illinois State Medical Society; died, August 21, from injuries received in an automobile accident, aged 62.

Joshua W. Holiday, Burlington, Iowa; College of Physicians and Surgeons, Keokuk, 1869; served as captain in the

● Indicates "Fellow" of the American Medical Association.

Civil War; died, August 17, at the Burlington Hospital, from cerebral hemorrhage, aged 75.

John Alexander Duncan, Havre, Mont.; University of Toronto, Can., 1904; member of the Medical Association of Montana; was found dead in a hotel room in Minot, N. D., from heart disease, aged 43.

Isham Hamilton Goss ✱ Athens, Ga.; Kentucky School of Medicine, Louisville, 1875; specialized in surgery; for six years member of Georgia state board of medical examiners; died in August, aged 68.

George Holbert Grace, Greenville, Ky.; University of Nashville, Tenn., 1901; member of the Kentucky State Medical Association; died, August 25, following an operation for gall stones, aged 42.

Henry Rich Higgins, Boston; Boston University, School of Medicine, 1883; member of the Massachusetts Homeopathic Society; died, August 23, at the home of his son, Allston, Mass.; aged 76.

Robert Patek, San Francisco; Johns Hopkins University, Baltimore, 1906; member of the Medical Society of the State of California; died, August 25, from epidemic encephalitis, aged 40.

Finley B. Richards, Uniontown, Ohio; Medical College of Ohio, Cincinnati, 1879; member of the Ohio State Medical Association; died, August 23, from carcinoma of the liver, aged 70.

Charles E. A. Laferriere, Woonsocket, R. I.; Victoria University, Montreal, Canada, 1887; died, August 15, following an illness of three years duration, from disease of the kidneys, aged 60.

Weston H. McConnell ✱ Lafontaine, Kan.; Medical College of Indiana, Indianapolis, 1882; formerly surgeon of the Pension Bureau of Wilson County; died, August 18, aged 61.

Henry A. Zeigler, Elizabethtown, Pa.; University of Maryland, Baltimore, 1870; died, August 16, in the Masonic Home, Eliabethtown, where he had lived for the last seven years, aged 70.

John D. Arrington, Murrayville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1882; was shot and killed by a woman, near Gainesville, Ga., July 1, aged 59.

George Dillwyn Baily, New Castle, Ind.; Indiana Medical College, Indianapolis, 1871; former owner of Spiceland Sanatorium, Henry County, 1901-05; died, August 19, aged 76.

Charles M. Butler, Morenci, Mich.; Detroit Medical College, 1880; during the late war served as examining physician, draft board No. 2, Morenci; died, August 19, aged 61.

Lester Burnside LeGro ✱ Bradford, Mass.; Baltimore Medical College, 1905; specialized in laryngology and rhinology; also a dentist; died, August 18, from diabetes, aged 55.

Charles H. Carey, Darlington, Wis.; Rush Medical College, Chicago, 1873; served as surgeon in the Spanish-American War, with the rank of captain; died, August 13, aged 80.

Edward Collins Murphy ✱ Kenosha, Wis.; Marquette University, Milwaukee, 1914; served in the U. S. Navy, 1896-1904; died, August 26, from acute pancreatitis, aged 45.

Leona F. Barnes, Columbus, Ohio; Ohio Medical University, Columbus, 1895; assistant to chair of anatomy, Ohio Medical University 1895-1900; died, June 10, aged 56.

John D. Smith, Miller School, Va.; University of Maryland, Baltimore, 1874; served forty years as physician to the Miller School, near Croset; died, August 19, aged 71.

John W. Marlow, Clarksville, Ill.; University of Michigan, Ann Arbor, 1872; member of the Illinois State Medical Society; died, August 10, from senility, aged 81.

William Myron Reynolds, New York City; Jefferson Medical College, Philadelphia, 1868; died, August 15, in Saint Luke's Hospital, from myocarditis, aged 59.

Louis Edouard Schiller, Lowell, Mass.; Laval University, Montreal, Quebec, 1888; died, June 10, in a Manchester hospital, following an operation, aged 63.

Edmund H. Chloupek, Chicago; Northwestern University, Chicago, 1889; died, August 23, from carcinoma of the intestines, aged 56.

Ernest Millens Clark, Oakland, Calif.; University of Vermont, Burlington, 1908; died, June 16, from lymphosarcoma, aged 37.

George William Poole, Chicago; Kentucky School of Medicine, Louisville, 1888; died, August 19, from gastritis, aged 62.

Charles Albert Stone, Mason City, Ill.; Rush Medical College, Chicago, 1894; died, August 19, aged 52.

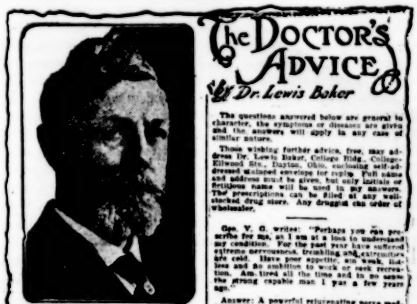
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Cadomene Tablets.—The Blackburn Products Co. of Dayton, Ohio, shipped a quantity of these tablets in September and October, 1920. The Blackburn Products Co., as many of our readers know, is the concern which has advertised a number of its preparations by the "prescription fake" method. Advertisements appear in the form of a "Health Column" entitled "The Doctor's Advice, by Dr. Louis Baker." The advertisements appear as "jokers" in what purport to be answers to questions. Cadomene tablets were analyzed by the federal chemists and the Bureau of Chemistry reported that they consisted essentially of zinc phosphid, strychnin and iron salts. Had the Blackburn Products Co. confined their false and fraudulent claims to the newspaper advertisements they could not have been touched under the federal Food


The DOCTOR'S ADVICE
By Dr. Lewis Baker

The questions answered below are general in character, the symptoms or diseases are given and the answers will apply in any case of similar nature.

Those wishing further advice, free, may address Dr. Lewis Baker, College Bldg., College-Ellwood Sts., Dayton, Ohio, enclosing self-addressed stamped envelope for reply. Full name and address must be given, but only initials or fictitious name will be used in my answers. The prescriptions can be filled at any well-stocked drug store. Any druggist can order of wholesaler.

Geo. V. G. writes: "Perhaps you can prescribe for me, as I am at a loss to understand my condition. For the past year I have suffered extreme nervousness, trembling and extremities are cold. Have poor appetite, am weak, listless and no ambition to work or seek recreation. Am tired all the time and to so name the strong capable man I was a few years ago."

Answer: A powerful rejuvenating nerve medicine should revive the dormant sluggish conditions and put new ambition and energy into your nerves. Obtain three grains of [illegible] in sealed tubes, take as per

and Drugs Act. But, with less shrewdness than many other nostrum makers, they made false and fraudulent claims on or in the trade package. For example:

"Invigorating . . . for the Treatment of . . . Neurasthenia (Nerve Exhaustion), General Debility, Melancholy, Dizziness, Heart Palpitation, Trembling Weakness, Waning Strength, Functional Irritation of the Urinary Tract, Languor and many other Symptoms due to . . . Worry, Grief, Intemperance, Dissipation, Overwork, Mal-Nutrition, Convalescence from Influenza, Etc.;"

". . . valuable for those who are despondent, nervous, irritable and unable to act naturally under the most ordinary circumstances . . ."

These and similar claims were declared false and fraudulent and in February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9179; issued July 25, 1921.*]

Equinox Lithia Water.—In September, 1920, the Equinox Mountain Spring Company, Manchester, Vt., shipped a quantity of "Equinox Lithia Water" that federal officials declared was misbranded. The product was declared adulterated for the reason that an artificially prepared mineral water had been substituted wholly or in part for the natural lithia water which the article purported to be. It was declared misbranded because the statements "Equinox Lithia Water . . . Bottled at Equinox Springs," "The Equinox Mountain Spring" were false and misleading. The product was not a natural lithia water but an artificial mineral water, pre-

pared by adding a lithium salt, sodium chlorid (table salt) and sodium bicarbonate (baking soda) to a lightly mineralized spring water. In January, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9107; issued June 17, 1921.*]

Dean Female Pills.—In September, 1920, government officials filed a libel for the seizure and condemnation of twelve packages of "Madame Dean Female Pills (Single Strength)." These had been shipped in March, 1920, con-

MADAME DEAN'S FRENCH FEMALE
PILLS.
A SAFE, CERTAIN RELIEF for SUPPRESSED MENSTRUATION.
NEVER KNOWN TO FAIL. Safe! Sure! Speedy! Satisfaction Guaranteed or Money Refunded. Sent prepaid for $1.00 per box. Will mail them on trial, to be paid for when relieved. Samples Free. If your druggist does not have them send your orders to the
MADAME DEAN MEDICAL CO., 406, LANCASTER, Pa.

signed by Martin Rudy, Lancaster, Pa., to Denver, Colo. Analysis of the pills by the Bureau of Chemistry showed that the product consisted essentially of quinin, aloes, ferrous sulphate ("green vitriol"), hydrastis (golden seal), ginger, and cornstarch. Some of the claims in or on the trade package for this nostrum were:

"Female Pills . . . give relief in Female Disorders of the menstrual functions."

". . . for Painful, Irregular and Scanty Menstruation."

". . . irregular, prolonged, or suppressed menstruation. . . . . Female Pills afford relief for these ailments."

". . . strengthen and build up the uterine function."

These, and similar statements, were declared false and fraudulent and in October, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9133; issued June 17, 1921.*]

Dr. J. H. McLean's Sarsaparilla Compound.—In August, 1920, the Dr. J. H. McLean Medicine Co., St. Louis, Mo., were alleged to have shipped a quantity of "Dr. J. H. McLean's Sarsaparilla Compound" which was misbranded. Analysis by the Bureau of Chemistry showed the preparation to consist essentially of iodids, a laxative plant drug, saponin (sarsaparilla), plant extractives included resins, salts of iron, potassium, and sodium, sugar, alcohol, and water. Some of the claims made for the stuff were:

"For The Treatment of Ailments Resulting From Impurity Of The Blood Such As Scrofula and all Scrofulous Humors, Goitre or Swollen Neck, Erysipelas, Old Sores, Eruptions on the Face or any part of the Body, Boils, Pimples, Blotches, Indolent Ulcers, Pains in the Bones, Rheumatism, Salt Rheum, Canker in the Mouth or Throat. Chronic Inflammation of the Mucous Membrane which lines the Nose, Throat, Windpipe, Ears and other parts and General Debility."

". . . for Specific Blood Poisoning, general purifying the blood, . . . and for symptoms which denote blood diseases, such as pimples, skin eruptions, etc. . . ."

These and similar claims were declared false and fraudulent, and in January, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9087; issued May 25, 1921.*]

Prescription 999.—The Combination Remedy Co. of Pittsburgh, Pa., shipped in January, 1919, a quantity of "Prescription 999" which was declared misbranded. When analyzed by the Bureau of Chemistry, Prescription 999 was found to consist of a mixture of fixed and volatile oil including oils of sandalwood, nutmeg and copaiba. The stuff was fraudulently labeled as a remedy for gonorrhea or gleet. In February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9149; issued June 17, 1921.*]

Donaldson's Wonderful New Life Remedy.—In December, 1919, and January, 1920, the T. Donaldson Medicine Co., Philadelphia, shipped a quantity of T. B. Donaldson's Wonderful New Life Remedy from Pennsylvania to Delaware. When analyzed by the Bureau of Chemistry, the preparation was found to consist essentially of an alkaline solution containing Epsom salt, senna, plant extractives, alcohol, and small amounts of volatile oils. Some of the claims made for the product were:

"For All Blood Diseases Stomach And Liver Difficulties Such as Dyspepsia, Biliousness, Syphilis, Scrofula, Erysipelas, Catarrh, Liver Complaints, Rheumatism, Enlargement Of Liver, Diseases Of The Kidneys, Chronic Constipation And Nervous Debility."

"It is one of the greatest kidney medicines in the world."

"It clears the urinal organs and strengthens the bladder, gives vitality, vigor, and vim to manhood."

These and similar claims were, naturally, declared false and fraudulent and in February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9146; issued June 17, 1921.*]

Acme Brand Pennyroyal Pills.—A quantity of these pills shipped by the S. Pfeiffer Mfg. Co. of St. Louis, in July, 1920, were declared misbranded under the federal Food and Drugs Act. The Bureau of Chemistry reported that analysis showed the pills to consist of aloes and oils of pennyroyal and tansy. The claims on the trade package were those usual to nostrums sold for the alleged cure of suppressed menstruation. Because of the fraudulent claims made they were declared misbranded and in February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 9158; issued July 25, 1921.*]

Kellogg's Sanitone Wafers.—In May, 1918, the F. J. Kellogg Co., a "patent medicine" concern of Battle Creek, Mich., shipped a quantity of Sanitone Wafers, which the federal authorities declared misbranded. F. J. Kellogg will be remembered by our readers as a quack of unsavory reputation who operated for some years from Battle Creek, Mich., and later from Detroit. From Battle Creek he sold "Kellogg's Safe Fat Reducer" and "Sanitone Wafers"; from Detroit he sold "Rengo" and "Protone." Rengo was an anti-fat preparation; Protone an anti-lean product. Kellogg, who died in January, 1916, is alleged to have made a million dollars out of his nostrums. Some time after his death the Kellogg mail-order fakery was still sending out letters to prospective victims, bearing Kellogg's picture and signature.

Greatest Nerve Vitalizer Known
A 50-CENT BOX FREE
Strengthen Your Nerve Vitality
50-CENT BOX FREE TO MEN AND WOMEN
Get New Vitality
50c Trial Box Free

Analysis of a sample of "Sanitone Wafers" by the federal chemists showed them to contain, essentially, salts of iron and chromium, a laxative plant extractive, red pepper and a trace of strychnin. The trade package contained such claims as:

"Locomotor ataxia is curable with chromium sulphate. . . . The wafers have chromium sulphate as their chief ingredient."

"Results from this salt (chromium sulphate) are speedy and striking. In . . . neurasthenia it deserves the unique position of being the only drug which is curative."

These and similar claims were declared false and fraudulent and in January, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9154; issued July 21, 1921.*]

Antilaiteuse.—In September and November, 1920, a quantity of Antilaiteuse, consigned by Dr. N. A. Sirois, Manchester, N. H., was shipped from New Hampshire to Maine. Analysis of a sample of the article by the Bureau of Chemistry showed that it consisted essentially of Epsom salt, about 85 per cent., and ground juniper berries. The trade package contained such claims as:

"To Cleanse and Relieve the body and blood of all poisons and impurities causing all kinds of disorders."

"Weening, removal of milk from limbs and blood, to prevent miscarriage, diseases of the womb, change of life, dropsy, kidney disease, rheumatism, eclampsia, excessive stoutness, paralysis, piles . . . and poor digestion."

"It acts by cleaning the kidneys, . . . and the blood."

These claims were declared false and fraudulent in that the article contained no ingredient or ingredients capable of producing the curative effects claimed. In January, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9108; issued June 17, 1921.*]

Leonardi's Injection No. 1.—A quantity of this product, shipped in March, 1918, and consigned by S. D. Leonardi and Co., Inc., was declared misbranded by the federal authorities. The federal chemists reported that analysis showed the preparation to consist essentially of an alkaline solution of borax, camphor and berberin. The stuff was falsely and fraudulently recommended as an effective treatment, remedy or cure for gonorrhea and gleet. In February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9191; issued July 25, 1921.*]

Correspondence

THE RESISTANCE OF ANTIBODY TO TRYPTIC DIGESTION

To the Editor:—In THE JOURNAL, June 25, p. 1820, Berg raised objections to a statement made by us (*J. Immunol.* **6**:185 [March] 1921) that antibodies are not affected by trypsin over considerable periods. The objection is based on a series of experiments by Berg and Kelser (*J. Agric. Res.* **13**:471, 1918) in which they exposed tetanus antitoxic serum to the action of trypsin and found a loss of antitoxic power of 60 per cent. in six days.

While we were familiar with the many attempts that had been made to purify immune serum by means of digestion and that such experiments were almost invariably accompanied by loss of antibody content, we considered that such experiments were not comparable with our own, which were performed under totally different conditions. Instead of using serum more or less diluted, we employed a solution of antibody prepared as follows: Pneumococci were allowed to absorb from an antipneumococcic immune serum such antibodies as they would (the well known absorption test), the sensitized pneumococci were then washed free of serum, extracted with mildly alkaline solutions, and the bacteria removed from the solution by centrifugation and filtration through filter candles. Such solutions contained a very considerable concentration of antibody, but necessarily contained such an infinitesimal amount of serum protein that in fact they no longer gave a chemical test for these substances.

As far as we are aware, solutions thus prepared contain antibody in the purest form in which it has yet been obtained, and digestion experiments conducted with such purified solutions must necessarily have greater weight than when the experiment is complicated by the presence of a mass of serum proteins whose digestion products may or may not be deleterious to the antibody molecule.

The experiments of Berg and Kelser were made with solutions containing 20 per cent. of the serum protein content of the original serums, and were therefore complicated to this extent. Of the basis of their experiments, Berg and Kelser state that although they believe the antitoxic molecule to be nonprotein in nature, it is so closely associated with a digestible protein that the splitting of this substance causes a splitting of the antitoxic molecule.

Antibody is either nonprotein in nature, protein or a compound molecule combining a nonprotein and protein base.

Berg and Kelser would place it in the latter class, since that is the meaning of their statement as to the close association of a protein fraction, but their evidence is inconclusive and capable of several interpretations. Our experiments would place it either in the nonprotein class or in that class of proteins not digestible with trypsin.

It is, of course, possible that the basic chemical nature of the antitoxic molecule differs from that of the antipneumococcic agglutinin and protective antibody with which we worked. In that case the experiments of Berg and Kelser have no bearing on our results except to show that our conclusions were too sweeping; on the other hand, if the basic nature of antibodies is the same (a reasonable assumption), their results are diametrically opposed to ours.

If in any set of conditions in which trypsin is active, antibody is unaffected, such experiments cannot be invalidated by other experiments done under conditions introducing an uncontrolled factor, such as was present in the work of Berg and Kelser. If in the presence of such a factor, antibody is inactivated or destroyed and, in the absence of this factor, remains uninjured, one must assume that this substance or its derivatives are responsible for the deterioration. We must hold, therefore, that the experiments noted by Berg and Kelser in no way invalidates either our experimental evidence or our conclusions.

F. M. HUNTOON, J. MASUCCI and E. HANNUM.
Glenolden, Pa.

"EFFECT OF LIGATION OF VAS DEFERENS ON TESTES"

To the Editor:—Kindly permit me to add the following remarks to the answer to Dr. Heuler's query on page 1698 of THE JOURNAL, June 11. The consequences of a vasectomy depend entirely on the technic used at the operation. If the vas, which Steinach considers to be probably also an organ of internal secretion, is severed, while all, even the smallest, blood vessels are spared, the results will be quite different from those generally following a brutally performed vasectomy. The operation as done under Steinach's personal supervision is a simple, but also a very delicate, one; consequently the testicle does not suffer any degeneration, and the results are quite different from those which we used to see in the times when Keyes' subcutaneous ligation was so often clumsily performed, and which we still frequently enough see after some operations for varicocele.

VICTOR G. VECKI, M.D., Lucerne, Switzerland.

Diabetes and Syphilis.—R. A. Bullrich writes to the *Semana Médica* **27**:379, 1920, to comment on the relative frequency of inherited or acquired syphilitic disease of the pancreas as a cause of diabetes. At the same time, he points out that diabetes is extremely rare among the less well-to-do although syphilis is so common among them. In addition to this fact is the experience that the fasting method of treating diabetes yields results far surpassing those obtainable with mercury. Each case therefore has its own indications, and an eclectic point of view is the wisest.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.
COLORADO: Denver, Oct. 4. Sec. Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Oct. 11. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.
FLORIDA: Tallahassee, Oct. 11. Sec., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.
GEORGIA: Atlanta, Oct. 11-13. Sec., Dr. C. T. Nolan, Marietta.
HAWAII: Honolulu, Oct. 9. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.
IDAHO: Boise, Oct. 4. Director, Mr. Paul Davis, Boise.
KANSAS: Topeka, Oct. 11. Sec., Dr. Albert S. Ross, Sabetha.
MASSACHUSETTS: Boston, Sept. 13-15. Sec., Dr. Walter P. Bowers, 144 State House, Boston.
MICHIGAN: Lansing, Oct. 11. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, Oct. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.
MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.
NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. R. E. McBride, Las Cruces.
NEW YORK: Albany, Buffalo, New York City and Syracuse, Sept. 26-29. Mr. Herbert J. Hamilton, Asst. Professional Examinations, Education Bldg., Albany.
OKLAHOMA: Oklahoma City, Oct. 11-12. Sec., Dr. J. M. Byrum, Shawnee.
PORTO RICO: San Juan, Oct. 4. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
RHODE ISLAND: Providence, Oct. 6-7. Sec., Dr. B. U. Richards, State House, Providence.
UTAH: Salt Lake City, Oct. 4. Sec., Dr. J. T. Hammond, Capitol Bldg., Salt Lake City.
WEST VIRGINIA: Clarksburg, Oct. 11. Sec., Dr. W. T. Henshaw, Charleston.
WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. J. D. Shingle, Cheyenne.

THE NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners since its organization in 1915 has completed the trial period of its usefulness. It has stood for the establishment of a thorough test of fitness to practice medicine which might safely be accepted anywhere. It has held eleven examinations, each of which included written, practical and clinical tests covering all the subjects of the curriculum. These examinations were conducted by members of the board, aided by medical teachers resident in the places where the examinations were held—in Washington, Philadelphia, New York, Boston, Chicago, St. Louis, Rochester (Minn.) and Minneapolis. During the war an examination was held simultaneously at Fort Oglethorpe and Fort Riley. Altogether, 325 candidates have been examined, of which 269 passed and received certificates. The board requires for admission to its examination that candidates must have completed a four-year high school course, two years of college work including physics, chemistry and biology, and must have graduated from a Class A medical school and taken a year's internship in an approved hospital.

In 1916, the board was endorsed by the American Medical Association, on the recommendation of the Council on Medical Education. Its certificates are now recognized by the Army, Navy and Public Health Service and by the licensing boards of the following twenty-one states:

Alabama	Iowa	North Carolina
Arizona	Kentucky	North Dakota
Colorado	Maryland	Pennsylvania
Delaware	Minnesota	Rhode Island
Florida	Nebraska	South Carolina
Georgia	New Hampshire	Vermont
Idaho	New Jersey	Virginia

The certificate is recognized, also, by the Conjoint Board of England and the Triple Qualification Board of Scotland.

In order to afford a wider opportunity of securing its certificate by examination, the board has recently adopted a plan which divides the examination into three parts as follows:

Part I: A written examination in the six fundamental medical sciences: (*a*) anatomy, including histology and embryology; (*b*) physiology; (*c*) physiologic chemistry; (*d*) general pathology; (*e*) bacteriology; (*f*) materia medica and pharmacology.

Part II: A written examination in (*g*) medicine, including pediatrics, neuropsychiatry and therapeutics; (*h*) surgery, including applied anatomy, surgical pathology and surgical specialties; (*i*) obstetrics and gynecology; (*j*) public health, including hygiene and medical jurisprudence.

Part III: A practical examination in (*k*) clinical medicine, including medical pathology, applied physiology, clinical chemistry, clinical microscopy and dermatology; (*l*) clinical surgery, including applied anatomy, surgical pathology, operative surgery, and the surgical specialties of the diseases of the eye, ear, nose and throat; (*m*) obstetrics and gynecology; (*n*) public health, including sanitary bacteriology and the communicable diseases.

Parts I and II will be held twice a year in Class A medical schools where candidates are registered. Part III will be held annually in Boston, New York, Philadelphia, Baltimore, Washington, Nashville, New Orleans, Galveston, Cleveland, Chicago, St. Louis, Minneapolis, Iowa City, Denver and San Francisco, where subsidiary boards have been established. The arrangement, therefore, permits the student to take Part I following the completion of the first two years of the medical course, Part II following the last two years, and Part III on completion of his hospital internship. The fees charged are, for Part I, $25; for Part II, $25; and for Part III, $50.

The board received $15,000 a year from the Carnegie Foundation for the Advancement of Teaching during the experimental period. It has now received $100,000 from the same source for the next five year period.

The members of the board are Surg.-Gen. M. W. Ireland, U. S. Army; Surg.-Gen. E. R. Stitt, U. S. Navy; Surg.-Gen. Hugh S. Cumming, U. S. Public Health Service; Lieut.-Col. J. F. Siler, M. C., U. S. Army, Washington, D. C.; Surg. G. W. McCoy, U. S. Public Health Service, Washington, D. C.; Commander C. M. Oman, M. C., U. S. Navy, Washington, D. C.; Dr. Herbert Harlan, Baltimore; Dr. Victor C. Vaughan, Ann Arbor, Mich.; Dr. Louis B. Wilson, Rochester, Minn.; Dr. Horace D. Arnold, Boston; Dr. Austin Flint, New York; Dr. Walter L. Bierring, Des Moines, Iowa; Dr. David A. Strickler, Denver; Dr. W. S. Carter, Galveston, Texas; Dr. Eugene L. Opie, St. Louis; Dr. Lewis A. Conner, New York; Dr. A. C. Eycleshymer, Chicago; Dr. J. M. T. Finney, Baltimore, and Mr. John G. Bowman, Pittsburgh. At the annual meeting in June, 1921, the board selected as its officers Surg.-Gen. M. W. Ireland, U. S. Army, president; Dr. J. S. Rodman, secretary-treasurer, and Mr. E. S. Elwood, managing director. The headquarters of the board are in the Medical Arts Building, Philadelphia.

Pennsylvania January Examination

Miss Mary Y. McReynolds, director, Bureau of Medical Education and Licensure of Pennsylvania, reports the written and practical examination held at Philadelphia, Jan. 11-15, 1921. The examination covered 5 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 82 candidates examined, 65 passed and 17 failed. The following colleges were represented:

College	Year Grad.	Number Licensed
PASSED		
Howard University	(1918, 2), (1919, 2)	4
Indiana University	(1919)	1
Maryland Medical College	(1905)	1
Harvard University	(1893), (1917)	2
Tufts College	(1917)	1
Columbia University	(1903), (1915)	2
Long Island College Hospital	(1919)	1
New York Homeopathic Med. Coll. and Flower Hosp.	(1909)	1
University of Buffalo	(1898), (1904), (1919)	3
Leonard Medical College	(1906)	1
Jefferson Medical College	(1916, 3), (1917, 5), (1918, 2), (1919, 10)	20
Temple University	(1919)	9
Univ. of Pennsylvania	(1915), (1917, 6), (1918), (1919, 6)	14
University of Toronto	(1919)	1
University of Virginia	(1899)	1
University of Naples	(1917)*	1
University of San Salvador	(1919)*	1
Medical School of American University, Beirut	(1912)*	1
FAILED		
Howard University	(1919)	1
University of Louisville Medical Department	(1911)	1
Tulane University	(1895)	1
Maryland Medical College	(1910)	1

University of Michigan Medical School	(1881)	1
Columbia University	(1911)	1
Temple University	(1918), (1919, 5)	6
University of Pennsylvania	(1919)	1
University of Vienna	(1899)*	1
National University, Athens	(1917)*	1
University of Padua	(1917)*	1
University of Kharkov	(1905)*	1

*Graduation not verified.

North Carolina June Examination

Dr. Kemp P. B. Bonner, secretary, North Carolina State Board of Medical Examiners, reports the written examination held at Raleigh, June 20-25, 1921. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 55 candidates examined, 51 passed and 4 failed. Twenty-nine candidates were licensed by reciprocity. Three candidates were licensed on government credentials. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Howard University	(1921)	91.1
Tulane University	(1919) 86.6, (1921) 80, 83.6, 87	
University of Maryland	(1921)	8 .3
Washington University	(1921)	95.7
Jefferson Medical College	(1920) 83.3, 87.1, (1921) 80.9, 81.4, 85, 85.7, 85.9, 86, 86.6, 87, 87, 87.1, 87.1, 87.3, 88.7, 89.9, 90.1, 90.1, 90.3, 90.3, 90.4, 90.9, 91.6	
University of Pennsylvania	(1919) 93.7, (1921) 84.7, 84.9, 85.1, 86.9, 88.1, 88.3, 88.7, 89.3, 89.3, 90, 91.1	
Woman's Medical College of Pennsylvania	(1921) 87.4, 90.1, 90.6	
Medical College of Virginia	(1921) 82.6, 85.3, 86.9, 87.7	
University of Virginia	(1921)	94
Undergraduate*		

FAILED College	Year Grad.	Per Cent.
Howard University	(1920)	63.3
Meharry Medical College	(1918) 75.3, (1920)	72.3
Medical College of Virginia	(1918)	60.4

LICENSED BY RECIPROCITY College	Year Grad.	Reciprocity with
University of Alabama	(1909)	Alabama
Atlanta Medical College	(1918)	Georgia
University of Louisville	(1916)	Kentucky
Medical School of Maine	(1874)	Maine, (1889) Florida
University of Maryland	(1905)	Virginia, (1916) Maryland
Harvard University	(1917)	Mass.
University of Michigan Medical School (1918) Michigan	(1900)	New Hamp.
Washington University	(1917)	Missouri
Cornell University	(1906)	New York
Long Island College Hospital	(1916)	New York
University and Bellevue Hospital Medical College	(1918)	Louisiana
Woman's Medical College of the New York Infirmary for Women and Children	(1890)	New Hamp.
North Carolina Medical College	(1919)	Virginia
Medical College of the State of South Carolina (1905) South Carolina	(1890)	Virginia
Memphis Hospital Medical College	(1898)	Michigan
University of Tennessee	(1911), (1917)	Tennessee, (1912) Alabama
Medical College of Virginia	(1916), (1918, 2)	Virginia
University College of Medicine	(1898)	W. Virginia
University of Virginia	(1915, 2), (1917)	Virginia

ENDORSEMENT OF CREDENTIALS College	Year Grad.	Endorsement with
University of Pennsylvania	(1915)	U. S. Army
Medical College of Virginia	(1917)	U. S. Navy
University of Virginia	(1917)	U. S. Navy

* Granted limited license.

Connecticut July Examination

Dr. Robert L. Rowley, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, July 12-13, 1921. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 39 candidates examined, 32 passed and 7 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Yale University	(1921) 76.5, 77.6, 78.2, 78.3, 81, 82.9, 83.1, 83.8, 84, 85.9, 87.4	
Boudoin Medical School	(1921)	80.2
Johns Hopkins University	(1921)	92
Harvard University	(1913) 83.4, (1920) 81.2, (1921) 84.3, 85.3	
Bellevue Hospital Medical College	(1897)	*
Columbia University	(1919) 85.3, (1921) 88.4, 89.2	
Cornell University	(1920) 83.4, 84.7	
Fordham University	(1921)	80.3
Long Island College Hospital	(1921)	76.7
New York University Medical College	(1896)	*
Jefferson Medical College	(1919)	85.8
University of Pittsburgh	(1914)	82.1
Woman's Medical College of Pennsylvania	(1901)*, (1920)	84.7
Baylor University	(1920)	73.4
University of Vermont	(1919)	79.6
Medical College of Virginia	(1917)	75

FAILED College	Year Grad.	Per Cent.
Baltimore Medical College	(1911)	68.8
College of Physicians and Surgeons, Baltimore	(1904)	64.9
University of Maryland	(1921)	73.4
Long Island College Hospital	(1921)	57.1
University of Vermont	(1920)	71.9
University of Naples	(1913)†	57.2
Baylor University	(1920)	73.4

* No grade given.
† Graduation not verified.

Book Notices

GENERAL PATHOLOGY. An Introduction to the Study of Medicine, Being a Discussion of the Development and Nature of Processes of Disease. By Horst Oertel, Strathcona Professor of Pathology, McGill University, Montreal. Cloth. Price, $5. Pp. 357. New York. Paul Hoeber, 1921.

In the foreword we are told that the aim is to treat of general pathologic processes as expressions of physicochemical laws, to trace the historical development of the ideas now in vogue in regard to these processes, and to emphasize the anatomic changes of diseases from a dynamic point of view. No fault is to be found with the objectiveness of the presentation, which is well sustained throughout. Undoubtedly there are more historical references in this book than in any other book on the same subject; yet, perhaps unavoidable, the historical matter seems rather too fragmentary to be of as much value as desirable. The influence of Harvey's discovery of the circulation on the development of medicine in general is not emphasized; the growth of the knowledge of the specificness of infectious diseases is not even mentioned; and on page 112 we are told point blank that the first observations on acquired immunity were made in 1791 by Plett, a country schoolmaster—obviously incorrect and misleading. The sections on pathologic anatomy and pathogenesis are probably the most carefully worked over parts. In the section on infection and bacteria, it would have been just as well to omit details of a strictly bacteriologic nature, as the section is not intended to take the place of bacteriologic textbooks. There are some evidences of haste or carelessness that should be removed at the earliest moment possible: There are misspelled names and words—Tunnecliffe for Tunnicliff, Walback for Wolbach, sensilism for sensibilisin. Yellow fever and rabies almost escape any mention, and are passed by with too little notice. Koch's culture methods are said to be ingenious and of great importance, but the student is not told what the methods really are. Once more we have an example of an author remaining in ignorance of the abandonment of the trinomial designations of bacteria. The grouping of streptococci, pneumococci and meningococci is not described clearly and adequately. Some of the names of bacteria are not correct, e. g., *Streptococcus erysipelatos, Bacillus rhinoscleroma*. It is hardly correct to say that the gonococcus is extremely difficult to cultivate or that it "is almost entirely pathogenic for man," that botulismus toxin acts similarly to tetanus toxin, that typhoid is transmitted usually by foodstuffs without any mention of water transmission. No mention is made of the flea in connection with rat plague. Examples of this sort could be multiplied and diversified. In the chapter on immunity, the manner in which antibodies develop is not described. There are no illustrations, because "emphasis has been put on discussion of the nature and development of pathological processes, and it is assumed that laboratory experience will supplement the use of the book." In its present form the book cannot be recommended as a high class, reliable text.

GREEK MEDICINE IN ROME. The Fitzpatrick Lectures on the History of Medicine, Delivered at the Royal College of Physicians of London in 1909-1910, with other Historical Essays. By The Right Hon. Sir T. Clifford Allbutt, K.C.B., M.A., M.D., Regius Professor of Physic in the University of Cambridge. Cloth. Price, $12. Pp. 633. New York: Macmillan and Co., 1921.

This book includes the Fitzpatrick lectures on the history of medicine delivered at the Royal College of Surgeons of London in 1909-1910, together with eight other historical essays. It contains a vast amount of material—so much, in fact, as to cause one to wonder how such a busy and noted physician could find time for the preparation of such a

thorough and scholarly treatise. It is unnecessary to say that it is written in classical and beautiful English, for Sir Clifford Allbutt writes no other kind. While the history of the development of Greek and Roman medicine forms the larger part of the work, the remaining essays, most of which have been previously printed in other publications, add great interest to the book. These essays include "Byzantine Medicine," "Salerno," "Growth of Public Medical Service," "Medicine of the Fifteenth Century," "Rise of the Experimental Method in Oxford," "Medicine in 1800," "Medicine of the Twentieth Century," and "Palissy, Bacon and the Revival of Natural Science." The book is one which will of course appeal to every one interested in the history of medicine. It is to be hoped, however, that its sale may be wide and that it will make many new converts to the study of this fascinating subject.

LIGATIONS OF THE LEFT SUBCLAVIAN ARTERY IN ITS FIRST PROPORTION. By William S. Halsted, M.D. The Johns Hopkins Hospital Reports. Volume XXI., Fasciculus 1. Paper. Price, $2. Pp. 96, with illustrations. Baltimore: The Johns Hopkins Press, 1920.

In this monograph the author includes two personal experiences with this rare operation, one of them being the largest aneurysm successfully operated on in this region. A brief historical review of vascular surgery is first given. The author endorses the ligations of the vein corresponding to an occluded main artery as a means of preventing gangrene of the distal part. He suggests that ultimately we may ligate arteries for the relief of edema due to occluded veins. Abstracts of the twenty-one recorded cases, including the two of his own, are included, with drawings indicating the site of ligation and the location of the pathologic condition. The author gives an interesting and helpful critical analysis of the methods used in the cases reported in the literature. A study of this work will be helpful to any one doing vascular surgery in that it will suggest certain fundamental procedures so that one may avoid mistakes.

FUNERAL MANAGEMENT AND COSTS. A World-Survey of Burial and Cremation. By Quincy L. Dowd. Cloth. Price, $3. Pp. 295. Chicago: University of Chicago Press, 1921.

The purpose of this book is to contrast the efficient municipal management of burial and protective provision made by European states and cities with the costly, inefficient, ostentatious and frequently vulgar management usually effective in American methods for disposal of the bodies of the dead. The foreword by Graham Taylor points out the need for such an argument. The work is presented in twelve chapters, on the cost of dying; undertaking trade; industrial insurance; laws relating to burial; the monument and mausoleum trade; benefit societies; burial in other countries; cremation; religious control of burial, and reforms in burial. The book is convincing, and its plea for reform deserves intelligent, sympathetic cooperation from physicians who know only too well the necessity for some economic reform in this matter.

RÔLE DES COLLOÏDES CHEZ LES ÊTRES VIVANTS. Essai de Biocolloidologie; Nouvelles Hypothèses dans le Domaine de la Biologie, et de la Médicine. Par Auguste Lumière. Paper. Price, 16 francs. Pp. 311, with 20 illustrations. Paris: Masson et Cie, 1921.

This book considers the evolution and flocculation of colloidal particles as the basis of physiology, normal as well as pathologic. Life is conditioned on the colloidal state, and flocculation determines sickness and death—that is the hypothesis guiding the author. There is an extensive bibliography of anaphylaxis, brownian movement, and of colloids, but unfortunately the arrangement is such that the only way to find a particular reference is to look up the author's name in the index.

INJURIES TO JOINTS. By Col. Sir Robert Jones, C.B., Ch.M., D.Sc., Inspector of Military Orthopaedics, Army Medical Service. Second edition. Cloth. Price, $2. Pp. 195, with 29 illustrations. New York: Oxford University Press, 1920.

This "war primer" is of a convenient size to carry in the pocket, and should be a great help to the surgeon who follows its tenets. The pages are crowded with the vital factors of joint treatment selected and condensed from an enormous experience in both civil and military practice. The clearness and definiteness of the directions will appeal to the practitioner who looks to it for aid. The scope of the work is indicated by the titles of the nine chapters, which consider the general outline and principles; bandaging, massage and movements; pain and stiffness in relation to diagnosis and treatment; stiffness and limitation of movements; contraction of scar tissue; joints of the upper limb; injuries to the spinal column; joints of the lower limb; ankle-joint and foot. With these contents greatly amplified in each of the chapters, there are few related matters that are not to be found in the text.

LIFE AND TIMES OF AMBROISE PARÉ (1510-1590). With a New Translation of his Apology and an Account of his Journeys in Divers Places. By Francis R. Packard, M.D., New York. Cloth. Price, $7.50. Pp. 297, with 49 illustrations. New York: Paul B. Hoeber, 1921.

This book is divided into two parts, the first consisting of a brief sketch of the life and times of Paré, and the second of a translation of Paré's book entitled "Apology and Treatise Containing the Voyages made into Divers Places." Dr. Packard's account of the life of the great French surgeon is a well written, interesting story, full of brief anecdotes and personalia. The repute of Dr. Packard as a medical historian is sufficient warrant of the accuracy of the biography. The translation of the famous work is a commendable addition to the valuable historical literature of our time. Other translations have appeared, but none of these are now easily available. The publisher has contributed an artistically printed text, and there are numerous reproductions of old paintings and drawings which lend themselves readily as illustrations of the subject matter.

A TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John Glaister, M.D., D.P.H., F.R.S.E., Professor of Forensic Medicine and Public Health in the University of Glasgow. Fourth edition. Cloth. Price, $7.50. Pp. 902, with 138 illustrations. New York: William Wood & Co., 1921.

The third edition of this book appeared in 1915. Much material has been added dealing chiefly with industrial and other poisons, laws on lunacy and the relationship of intoxication to the responsibility of crime. The book applies, of course, chiefly to English medical practice so that the first chapter deals chiefly with the work of the general medical counsel and the methods of legal procedure followed in England. However, beginning with the second chapter, on medical evidence, the discussions may be considered generally applicable. The author holds the chair of forensic medicine in the University of Glasgow, and has been for many years a medical legal examiner for the district in which he resides. His work may be considered one the best textbooks available on this subject.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Cloth. Price, $6. Pp. 564, with 85 illustrations. New York: William Wood & Co., 1921.

This volume, the thirty-ninth in a long series, covers advances in medical science during the year 1920. Among the American contributors are Drs. F. H. Albee, E. Wyllys Andrews and J. Ramsay Hunt. However, the British authors and contributors have abstracted freely from American literature. To those wishing to brush up on recent contributions to medical science, the book will be of great assistance. The only criticism which continues to attach to the volume is the general use of the apothecaries' system alone in prescriptions which are quoted, and the frequent mention of preparations in the British pharmacopeia not regularly available to Americans.

THE HEART: OLD AND NEW VIEWS. By H. L. Flint, M.D., Physician to the Mansfield Hospital. Cloth. Price, 15 shillings net. Pp. 177, with illustrations. London: H. K. Lewis & Co. Ltd., 1921.

The more recent views as to the mechanism of the heart beat are here clearly and concisely set forth. The aid furnished by the polygraph and electrocardiograph in interpreting irregularities is explained by text and tracings. The first third of the book is taken up with an historical outline of cardiology, emphasis being laid on the views held before the time of Harvey and on the contribution of Harvey himself. The work of those of later date is treated with great brevity. The book is to be recommended to those wishing a brief yet reliable outline of the subject.

Medicolegal

Physicians as Witnesses—Cause of Death—Provisions for Necropsies

(United States Fidelity & Guaranty Co. v. Hood (Miss.), 87 So. R. 115)

The Supreme Court of Mississippi, Division B, in overruling a suggestion of error after a judgment had been rendered in favor of the plaintiff, Mrs. Hood, on a policy of accident insurance that had been issued to her husband, says that the death of the insured, who was 56 years of age, occurred one morning about two weeks after he had fallen and struck his head on frozen ground, and that his body was buried in the afternoon of the day after his death. It appeared from the evidence of a physician who attended him that the insured was affected with high blood pressure and some kidney trouble. Another physician, who had also been called to attend the insured, was placed on the witness stand by the defendant company, and, in the absence of the jury, testified that he made one examination and one visit to the insured; that in his opinion the condition of high blood pressure and the kidney trouble produced the death, and that he could not see that the fall had anything to do with it. This evidence given by the second physician was excluded and did not go to the jury.

The court holds that, under Section 3695 of the Code of Mississippi of 1906 (Hemingway's Code, Section 6380), a physician is incompetent to testify to facts which come to his knowledge by virtue of his being employed by his patient as a physician, and the patient does not waive the privilege because he introduces another physician who testifies for the patient about the same facts. It is improper practice in such case to permit the physician to testify at all about such facts even in the absence of the jury. The proper practice is to ascertain whether the facts were learned because of the relation, and, if so, to exclude the evidence. One of the reasons that may have prompted the legislature in the enactment of the statute was the evil of commercializing knowledge so obtained by certain experts, so called, and by physicians employed by one party to wait on and minister to parties which such employer had injured. But, whatever may have been the reason for the enactment of the statute, the statute expressly prohibits a physician from testifying without the consent of the patient. The evidence of a physician ought not to be received before the court, and it is error for the court to proceed on the idea that the judge and the public may hear the statement of the physician in such case, though it be excluded from the jury.

Where a provision of an accident insurance policy insures against "the effects resulting directly and exclusively of all other causes from bodily injury sustained . . . through accidental means," and an accident happens which sets in action a latent and inactive disease, and death results from the accident accompanied by the effects of such disease, the accident is the proximate cause of the death. To avoid the policy in case of an accident accompanied by disease, the disease must proximately contribute to the death.

As to the provision of an accident policy providing for a necropsy in case of death, it will be construed most strongly against the insurer and in favor of the insured, and so as to require the demand and the operation to be made before interment. If the company desires to make a necropsy, it must arrange its affairs so as to secure the necessary information and make the demand and perform the operation before interment. A provision in an accident policy of insurance providing for a necropsy after the body has been buried is contrary to public policy and void. While the act of removing the body from the grave for the purpose of a necropsy under a contract of the character of the one here involved would not come within the literal meaning and purpose of the Mississippi statute so as to make it a felony, still the court thinks the statute establishes a settled purpose on the part of the public to protect the repose of the dead and to protect the living from the violation of the sensibilities and sentiments that cluster round the dead. The beneficiary in a life insurance policy is not the only person that has an interest in having the repose of the dead respected and held sacred. It is shocking to the senses to conceive of one person or one or more persons contracting so as to provide for the exhumation and mutilation of dead bodies. The court thinks that to hold that such rights may be established by contract is carrying commercialism to unwarranted extremes.

Physician Issuing to Addict Prescription to Be Filled Through Innocent Agency

(United States v. Keidanz (U. S.), 270 Fed. R. 585)

The United States District Court, Southern District of New York, in overruling a demurrer to an indictment, says that the one question submitted was whether an offense was charged, under Section 2 of the Harrison Narcotic Law, where it appeared that for a consideration the defendant issued an order or "prescription" for opium, not in the regular course of his professional practice, but to an "addict," for a prohibited use, and thereupon, as was intended, the addict presented the prescription to and had it filled by a dealer, who had no reason to believe that it had been wrongfully issued. The act makes it unlawful for any one to "sell, barter, exchange or give away" opium, except in a case, among others, in which it is dispensed or prescribed by a physician "in the course of his professional practice only," and admittedly, under the construction placed on these provisions by the Supreme Court of the United States in Jin Fuey Moy, 41 Sup. Ct. R. 98, the physician as well as the dealer may be convicted, where both have the requisite criminal intent. The real contention of defendant Keidanz therefore was that, while he set on foot a plan for the commission of a crime, and performed the first act toward its accomplishment, he could not be held responsible because, as was intended, the offense was consummated through an innocent agency. To such a view this court is unable to assent. The injunction of the statute was violated by the defendant's wilful procurement and participation, and the quality of his act was not affected by the fact that another agency innocently cooperated. In the Jin Fuey Moy case it was expressly held that "one may take a principal part in a prohibited sale of an opium derivative belonging to another person by unlawfully issuing a prescription to the would-be purchaser." Such a part the indictment here alleged the defendant took, and he could not claim immunity on the ground that the dealer accepted the prescription in good faith and filled it without knowledge of its unlawful purpose.

Injury to Epileptic Not Arising Out of Employment

(Cox v. Kansas City Refining Co. (Kan.), 195 Pac. R. 863)

The Supreme Court of Kansas says that a workman who had long been afflicted with epilepsy was seized with an epileptic fit in the course of his employment in a refining plant, but such epileptic fit was not traceable to his work; nor did his employment contribute in any measure toward bringing on such affliction. During his epileptic seizure the workman became unconscious and fell against some hot pipes and severely injured his back. The court holds that the accident and consequent injury did not arise out of his employment, but out of his affliction, and compensation for his injuries could not be awarded against his employer.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
Amer. Assn. of Obst., Gynec. and Abdom. Surgs., St. Louis, Sept. 20-22.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Roentgen Ray Society, Washington, D. C., Sept. 27-30.
Colorado State Medical Society, Pueblo, Oct. 5-7.
Idaho State Medical Association, Twin Falls, Oct. 6-7.
Indiana State Medical Association, Indianapolis, Sept. 28-30.
Kentucky State Medical Association, Louisville, Sept. 27-29.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
New England Surgical Society, Worcester, Mass., Sept. 21-22.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 3-6.
Utah State Medical Association, Salt Lake City, Sept. 13-14.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Virginia, Medical Society of, Lynchburg, Oct. 18-21.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

Aug. 15, 1921, **28**, No. 2

*Objects and Method of Diet Adjustment in Diabetes. R. T. Woodyatt, Chicago.—p. 125.
*Acute Yellow Atrophy of Liver. M. Kahn and J. Barsky, New York. p. 142.
*Food Allergy as a Cause of Abdominal Pain. W. W. Duke, Kansas City, Mo.—p. 151.
Phenols in Urine in Pellagra. M. X. Sullivan and P. R. Dawson, Spartanburg, S. C.—p. 166.
*Basal Metabolism and Specific Dynamic Action of Protein in Liver Disease. J. C. Aub and J. H. Means, Boston.—p. 173.
*Diagnosis of "Eventration" of Diaphragm. H. M. Korns, Cleveland. —p. 192.
*Bigeminal Pulse in Atrioventricular Rhythm. P. D. White, Boston. —p. 213.
*Synthesis and Elimination of Hippuric Acid in Nephritis: New Renal Function Test. F. B. Kingsbury and W. W. Swanson, Minneapolis. —p. 220.

Diet Adjustment in Diabetes.—The rationale of dietetic management in diabetes Woodyatt points out is to bring the quantity of glucose entering the metabolism from all sources below the quantity that can be utilized without abnormal waste; and to adjust the supply of fatty acids in relationship to the quantity of glucose so that in the mixture of foodstuffs oxidizing in the body, the ratio of the ketogenic fatty acids to glucose shall not exceed limits compatible with freedom from ketonuria. When, as, and if, under these conditions of relative rest for the pancreas, the glucose using function improves, then the food supply may be increased gradually in so far as this can be done without disturbing the above relations. In a normal individual, the ingestion of fat will not prevent the death of the organism because there is a continual loss of tissue protein from the body which finally weakens some vital organ to such an extent that death takes place. But the ingestion of fat may spare tissue fat and thus prevent the protein loss from becoming abnormally great. It may be said that the ingestion of fat spares the individual any such protein loss as will occur if the tissue fat is allowed to become too much depleted. In this sense, the ingestion of fat by an emaciated individual spares protein for that individual. If a certain diabetic patient during a fast reacts essentially as a nondiabetic individual in the same state of nutrition; and if he weighs 50 kg., produces from 1,250 to 1,500 calories, and in doing so actually mobilizes and burns from 100 to 120 gm. or more fat, the ingestion of an equal quantity of fat should leave his metabolism in the same state as before. The supply of fat would come at one time from the tissues, at another from the diet, but the quantity thrown into metabolism—the quantity presenting itself for disposition in the cells would be the same in both cases. If these premises are sound, why then, asks Woodyatt, should we ever use complete fasting for diabetes? For diabetes itself, and particularly for diabetes associated with undernutrition, why for the purpose of desugarization should the patient be compelled to draw from his tissues the fat that he might draw from a diet, especially if in drawing from his tissues he lowers his fat reserves to the extent that he increases his protein losses? The practice of starving, or virtually starving, a patient in order to render his urine sugar "free," and then building up the diet, first with carbohydrate and then with protein, with a particular avoidance of fat, would appear to be based on the supposition that if fat were administered it would increase the catabolism of fat. But this would be in disregaard of the endogenous food supply, and illustrates the necessity of thinking in terms of the metabolism rather than of the diet. As the diet falls, the endogenous supply rises to take its place, and vice versa. The lower the diet, the less its significance in calculating the food supply from all sources. Woodyatt deals with the food supply in terms of carbohydrate protein and fat, discusses hypothetical diets, gives an estimation of optimal diets and reports an illustrative case.

Acute Yellow Atrophy.—A chemical analysis was made by Kahn and Barsky of the livers of two cases of acute yellow atrophy.

Food Allergy Cause of Abdominal Pain.—Humans and animals may become sensitive to alien bodies of many varieties. Duke asserts that when this is the case, they react whenever they come in contact with the body to which they are sensitive. The gastro-intestinal mucosa may become hypersensitive to an article of food with the result that the patient experiences severe abdominal pain, often associated with nausea and vomiting, whenever he eats the food to which he is sensitive. These alimentary symptoms are in many cases the sole striking manifestations of the reaction. Individuals sensitive to uncommon articles of diet, such as shad roe, lettuce, honey, strawberries, cabbage, tomatoes and paprica, usually give a history of occasional attacks of abdominal pain and digestive upset. They are, as a rule, free of digestive disturbance between attacks. Individuals sensitive to the commoner articles of food, such as milk or eggs, have more frequent attacks of pain and are often subject to chronic indigestion as well.

Basal Metabolism in Liver Disease.—The basal metabolism in twelve cases of liver disease studied by Aub and Means was essentially within normal limits. The liver is, therefore, either not an important regulator of the metabolic rate, or it is adequate for this purpose even when severely diseased.

Eventration of Diaphragm.—Korns reports a case of aplasia of the right lung and right half of the diaphragm, associated with congenital dextrocardia and reviews the literature on this subject.

Bigeminal Pulse in Atrioventricular Rhythm.—The case of a patient is recorded by White who from some unknown cause of probable vagus overactivity developed sino-auricular bradycardia (or s-a block) with ventricular escape, the rhythm changing later to atrioventricular in type and finally returning to normal—all in the course of a few weeks. Little, if any, clinical evidence of disease existed at any time. When the atrioventricular rhythm was slowest and the backward conducion of the impulse from the a-v node to the auricle the most retarded, a curious bigeminy occurred with the sandwiching of an auricular complex between two ventriculars. This is the second observation of this phenomenon recorded.

Hippuric Acid in Nephritis.—A modification adapting the Folin-Flanders method for the determination of hippuric acid to albuminous urines is described by Kingsbury and Swanson. Sodium benzoate, in 2.4 gm. doses, is completely synthesized into hippuric acid and eliminated as such in individuals whose kidneys have been demonstrated to have been damaged extensvely, these findings having in some cases been checked by necropsy findings. In nephritis, hippuric acid is excreted at the same rate whether its source was ingested benzoate or an equivalent amount of hippuric acid in the form of the sodium salt. The synthesis must occur fully as fast as the kidney is able to excrete the hippuric acid formed. Neither benzoic acid itself nor any salt of it has been found in the urine of any patient so far studied after the ingestion of sodium benzoate. The three hour output of hippuric acid on a diet free from fruit and cranberries is relatively too small to affect the results obtained when 2.4 gm. sodium benzoate are ingested, and, therefore, has been disregarded in making the benzoate tests. From 95 to 100 per cent. of the 2.4 gm. of ingested sodium benzoate appears in the urine as hippuric acid within three hours, and represents the normal average. After ingestion of from 6 to 10 gm. sodium benzoate, the rate of elimination is less. Kingsbury and Swanson conclude, that in man the kidney does not play the leading rôle in the synthesis of hippuric acid as has been supposed by various investigators from time to time. It may play a minor rôle, for in the normal individual hippuric acid is excreted at a higher rate after benzoate ingestion than after hippuric acid ingestion in equivalent amount, and this difference is also noted in some of the cardiac cases, but not in the advanced nephritics. A new renal function test is described in which the ability of the kidney to eliminate hippuric acid at a definite and rapid rate is the criterion. Benzoic acid cannot be substituted for the sodium salt in this test for its relatively low solubility in water probably causes a lower rate of absorption. At any rate,

after its use the amount of hippuric acid eliminated in three hours is about one-half only of that eliminated in the same time after the ingestion of an equivalent amount of sodium benzoate.

Boston Medical and Surgical Journal

Aug. 11, 1921, **185**, No. 6

Typhoid Fever Cases in Three Hospital Centers of American Expeditionary Forces, France. W. H. Robey, Boston.—p. 161.
*Report of Harvard Infantile Paralysis Commission on Diagnosis of Acute Cases in 1920; Incidence of Cases Without Paralysis. F. W. Peabody, Boston.—p. 174.
Significant Reactions of Arterial Tension. Manifestations of Angiokinetic Energy, Clinically Observed and Interpreted. C. J. Enesbuske, Boston.—p. 176.

Report of Harvard Infantile Paralysis Commission.—A review of the therapeutic results reported since 1916 left the Harvard Infantile Paralysis Commission unconvinced as to the demonstrated value of any method of treatment thus far suggested, and they decided in 1920 that they would not make any representations with regard to specific treatment in the acute stage. The commission offered the services of its representatives simply as diagnosticians. This gave an opportunity for the collection of data regarding the natural course of the disease and the frequency of the development of paralysis. There are only thirteen cases in which the clinical picture, the pleocytosis in the spinal fluid, and the subsequent history of the case, justify the diagnosis of acute poliomyelitis in the preparalytic stage. An analysis of this group of cases show that only four, or 31 per cent., became definitely paralyzed, while nine, or 69 per cent., did not develop any paralysis. In all probability the incidence of paralysis in patients infected with acute poliomyelitis varies in different epidemics, at different periods in the same epidemic, and among different groups or ages at the same period in an epidemic. The Harvard Infantile Paralysis Commission treated fifty-one cases in the preparalytic stage by intravenous injection of the serum of patients who had recovered from the disease, and thirty-five, or 69 per cent., recovered without paralysis. Considering the fact that the evidence at hand indicates that about 65 per cent. of patients infected by acute poliomyelitis never develop paralysis even if untreated, the results of these small series of cases cannot be regarded as carrying great weight. In a disease in which a favorable outcome is apparently more commonly the rule than the exception, it is particularly important to be extremely critical with regard to therapeutic measures. The most valuable criterion of the efficacy of treatment is a real understanding of the natural course of the disease.

Aug. 18, 1921, **185**, No. 7

*Pneumonia in Infants and Children. A Clinical Study of 208 Hospital Cases. A. B. Lyon, Boston.—p. 189.
*Eczema in Breast-Fed Baby and Protein Sensitization. E. S. O'Keefe, Boston.—p. 194.
Significant Reactions of Arterial Tension Manifestations of Angiokinetic Energy Clinically Observed and Interpreted. C. J. Enesbuske, Boston.—p. 196.
Typhoid Osteitis; Report of Case Treated by Carrel-Dakin Method. P. D. Wilson, Boston.—p. 201.
Lipoma of Mesentery. B. H. Alton, Worcester, Mass.—p. 205.
Perforation of Meckel's Diverticulum of Jejunum. T. R. Donovan, Fitchburg.—p. 207.

Pneumonia in Children.—During a period of two years, 208 cases of lobar and bronchopneumonia in patients 12 years of age, or younger, have been admitted to the Pneumonia Service of the Boston City Hospital, of whom 109 were of the lobar and 99 of the lobular type. The total death rate in the lobar pneumonias was 4.6 per cent., but in uncomplicated cases, it was only 1.9 per cent. The total death rate in bronchopneumonias was 35.1 per cent.; 74.3 per cent. of these deaths were in patients two years of age or younger.

Eczema in Breast Fed Babies.—Of the forty-one cases of eczema in breast fed infants tested by O'Keefe, twenty-five babies, or about 61 per cent., showed a positive reaction to some one or more of the proteins used. Seventeen, or 41 per cent. showed a positive reaction to one of the egg proteins. Sixteen, or 39 per cent., showed a positive reaction to one of the cow's milk proteins. Oats appeared twice and wheat once. In each case of sensitization to the cereal proteins, egg or milk proteins also gave a positive response. No sensitized case among these breast fed infants failed to show a positive response to either egg or milk proteins, and about 20 per cent. of these sensitized cases showed a positive response to both. Apparent cure in about 40 per cent. of these cases, and definite improvement in about 20 per cent. more has followed the omission or limitation in the maternal diet of one or more food proteins to which the infant is sensitive.

California State Journal of Medicine, San Francisco

August, 1921, **19**, No. 8

Epidemic Encephalitis. H. C. Moffitt, San Francisco.—p. 305.
Diagnosis of Hypothyroidism. N. W. Janney, Los Angeles.—p. 313.
Artificial Pneumothorax in Treatment of Pulmonary Disease. R. A. Peers, Colfax.—p. 316.
Monthly Fluctuations in Normal Metabolic Rates of Men and Women. A. H. Rowe and M. Eakin, Oakland.—p. 320.
Tics and Their Treatment. T. C. Little, San Diego.—p. 324.
Case of Chronic Trochanteric Bursitis. J. K. Swindt, Pomona.—p. 326.
Meningitic Epilepsy. C. E. Reynolds, Los Angeles.—p. 329.
Chronic Arthritis. S. J. Hunkin, San Francisco.—p. 334.
*Skin Rashes in Exophthalmic Goiter. F. F. Gundrum, Sacramento. p. 339.
Useful Apparatus in Physiotherapy. H. L. Langnecker, San Francisco, and F. E. Beorke.—p. 339.

Skin Rashes in Exophthalmic Goiter.—Gundrum reports two cases which presented what is apparently an uncommon skin complication, and reviews briefly the available literature on skin rashes in exophthalmic goiter. One patient had a discrete rash scattered over arms, body, and legs, most profusely over the legs, as high as the knees. This consisted of deep, pink, almost red macules, barely perceptibly raised, varying from the size of a pea to that of a quarter. They disappeared on pressure. There was no scaling, no weeping, and no edema. The second patient had very slightly elevated macules, deep pink in color, in size varying from a pea to a dime. They itched "quite a lot." The distribution was symmetrical, and about ten were present on each forearm, and twenty on each leg. In both cases the rash disappeared after operation and did not recur.

Colorado Medicine, Denver

August, 1921, **18**, No. 8

*Sporotrichosis; Case Report. C. E. Tennant and W. S. Dennis, Denver.—p. 165.
Specifications for Simple Septic Tank. J. W. Morgan, Denver.—p. 166.
Focal Infection in Relation to Systemic Disease, from Dental Standpoint. F. D. Burns, Durango.—p. 168.

Sporotrichosis.—The case reported by Tennant and Dennis occurred in a 16 year old boy, a bank clerk. The patient stated that early in August, 1920, he had a number of mosquito bites on his legs, between the knee and ankle. A suggestion as to the possible source of infection is contained in the fact that at the time of having these mosquito bites he had been bathing in a semistagnant stream; a short time later he became aware of what he describes as a "sore pimple" on the outer aspect of the left leg, at about the junction of the middle and lower thirds. At this site a firm nodule formed. This nodule was below the skin surface and developed slowly to about the size of a cherry. It began to soften and take on a purplish color. During and following this development other nodules appeared, in sequence, one above the other, in almost a straight line, due to the fact that the infection traverses the deep lymphatics. These were also firm and deep and, after reaching the size of a cherry, took on the same discoloration with softening. Spontaneous rupture did not occur. The lesions were incised when they became softened and a thick, bloody, semipurulent material escaped. There was no attempt at healing. Other nodules made their appearance, circumferentially, around the primary lesion and these, after going through the same process of development, merged together forming large ulcerated areas. The surface of the ulcerated areas was unhealthy. The skin edges were slightly sunken, discolored and sloughing. While these ulcers were not entirely painless, the discomfort was small compared with the loss of tissue. There was no particular systemic reaction and the eosinophilia which is often associated with these cases did not present itself. The treatment in this consisted of potassium iodid administered internally, roentgen-ray light therapy, Bier's hyperemia and strapping with adhesive. Eight months after the initial infection, the lesions are completely healed, although the epidermis is very thin.

Georgia Medical Association Journal, Atlanta

July, 1921, **10**, No. 14

Crawford W. Long: Tribute and Plea for Appropriate Recognition in Hall of Fame at Washington. F. W. Quillian, Atlanta.—p. 543.
Sir William Osler. S. Stamps, Atlanta.—p. 549.
Preservation of Health. C. W. Strickler, Atlanta.—p. 550.
Free Diphtheria Antitoxin. T. D. Walker, Macon.—p. 554.
Case Report of Fracture of Femur Followed by False Joint. M. C. Pruitt, Atlanta.—p. 557.
Bronchial Asthma. M. B. Allen, Hoschton.—p. 559.

August, 1921, **10**, No. 15

Status of Child Hygiene in Georgia. W. L. Funkhouser, Atlanta.—p. 607.
Etiology and Treatment of High Blood Pressure. R. T. Dorsey, Atlanta.—p. 612.
Factor of Atony and Ptosis in Gastro-Intestinal Disturbance. J. B. Fitts, Atlanta.—p. 615.
Tonsils, with Special References to Local Anesthesia. A. G. Fort, Atlanta.—p. 618.
Anociation in Abdominal Surgery. W. A. Selman, Atlanta.—p. 619.
Diagnosis and Treatment of Hydrocephalus. C. E. Dowman, Atlanta. p. 621.
Orthopedic Gymnasium; Its Need and Purpose. T. Toepel, Atlanta. —p. 625.
Illness and Death of Napoleon. W. R. Holmes, Atlanta.—p. 628.
Life of John Hunter. F. K. Boland, Atlanta.—p. 632.
Vital Statistics and Medicine. S. R. Roberts, Atlanta.—p. 637.

Illinois Medical Journal, Oak Park

August, 1921, **40**, No. 2

Lessons of World War for Internist. H. Brooks, New York.—p. 81.
Radium Emanation in Upper Air Passages as Compared to Radium; A Method of Applying It with Especial Reference to Laryngeal Carcinoma. O. T. Freer, Chicago.—p. 85.
Malpractice Insurance and Its Costs. R. J. Folonie, Chicago.—p. 92.
*Hernia of Diaphragm. E. C. Roos, Forest Park.—p. 94.
*Removal of Tooth from Nares. S. Rosenblatt, Chicago.—p. 96.
Relation of Eye, Ear, Nose and Throat to General Medicine. J. B. Morton, Decatur.—p. 97.
Defective Mental Development with Special Reference to Cases Showing Delinquent Tendencies. T. G. McLin, Jacksonville.—p. 102.
Headaches of Ocular Origin. W. H. Wilder, Chicago.—p. 104.
Palliative Treatment of Hemorrhoids. C. J. Drueck, Chicago.—p. 107.
*Nonperforative Appendicitis Followed by Peritonitis or Abscess. G. L. McWhorter, Chicago.—p. 109.
Detachment of Adherent Placentae and Delivery in Abortion. C. E. Ruth, Des Moines, Iowa.—p. 113.
Prostatectomy and Prostatic Mortality. E. W. White, Chicago.—p. 116.
Infection as Cause of Stillbirth; Report of Case. E. L. Cornell, Chicago.—p. 120.
Otitic Brain Abscess. G. W. Boot, Chicago.—p. 122.
Dichloramin T Treatment of Burns. F. P. Horan, Evanston.—p. 123.

Hernia of Diaphragm.—In Roos' case the entire stomach and the splenic flexure of the transverse colon made up the contents of the hernia into the thoracic cavity.

Tooth in Nares.—Rosenblatt's patient was violently struck in the mouth by a lever handle, which had suddenly been released. This accident lacerated the lips and broke several teeth. Within a few weeks after the accident the mouth, including lips and gums, had been nicely healed, whereon the patient was attended by a dentist who attached suitable bridgework so that the patient again had normal use of his mouth. Two years after this accident the patient complained of difficult breathing through the nose and on examination the left nares was found to be obstructed. On shrinking the mucous membrane a white cartilaginous looking object was noticed which proved to be very firm to the touch, and on working the mucous membrane away from it what might at first have been mistaken for a septal ridge was found to be a tooth.

Nonperforative Appendicitis Causing Peritonitis.—Five cases are reported by McWhorter. In two cases large walled off abscesses were present. The acute inflammation in the appendix had largely subsided and there was no evidence of perforation. In three cases a peritonitis was present. In case three a staphylococcus was cultured from the peritonitis. Nearly all of the round cells throughout the appendix wall contained organisms in cases three and five, the latter of which illustrates particularly well early changes.

Iowa State Medical Society Journal, Des Moines

Aug. 15, 1921, **11**, No. 8

Thyroid and Its Diseases. C. H. Mayo, Rochester, Minn.—p. 297.
Physiology of Heart Beat. E. D. Allen, Hampton.—p. 300.
Usual Clinical Symptomatology of Heart Disease. M. Mallory, Des Moines.—p. 304.
Therapy of Cardiovascular Disease. V. L. Treynor, Council Bluffs. —p. 307.
Graphic Methods in Diagnosis of Heart Disease. A. C. Davis, Iowa City.—p. 310.
Significance of Hematuria: Report of Forty-Six Cases. E. G. Davis, Omaha.—p. 315.
Feet Potential Seat of Fatigue. W. M. Gerard, Cedar Rapids.—p. 319.
Foundation Fund of Tristate District Medical Society. H. G. Langworthy, Dubuque.—p. 321.

Journal of Urology, Baltimore

May, 1921, **5**, No. 5

Case of Pseudohermaphrodismus Masculinus, Showing Hypospadias, Greatly Enlarged Utricle, Abdominal Testis and Absence of Seminal Vesicles. H. H. Young and J. R. Cash.—p. 405.
Some Hypotheses Regarding Renal Tuberculosis. A. L. Chute.—p. 431.
Standard of Cure in Gonorrhea. A. R. Fraser.—p. 439.
Gradual Withdrawal of Residual Urine from Chronically Overdistended Bladder. G. S. Foulds, Rochester, Minn.—p. 453.
Visit to Some European Urologic Clinics. D. N. Eisendrath, Chicago. —p. 461.
*New Growths Developing in Undescended Testicles. J. H. Cunningham, Boston.—p. 471.
Case of True Lateral Hermaphroditism in a Pig with Functional Ovary. G. W. Corner.—p. 481.

New Growth in Undescended Testicle.—A man was operated on for bilateral undescended testes. The right testicle was in the inguinal canal, associated with a congenital hernia. There existed a congenital hernia on the left side and the testicle was found inside the internal abdominal ring. The testicles were placed in the scrotum and the hernia also repaired after the method of Bassini. There was apparently nothing wrong with either testicle. Five years later the man was again operated on for a tumor the right testicle which proved to be a teratoma. Cunningham states that a perusal of the literature shows that new growths developing in undescended testicles is in reality of rare occurrence, usually occurs when the organ is retained within the inguinal canal or abdomen and the case cited is the only one that can be found in which a tumor developed in an undescended testicle, which had been replaced in the scrotum by operation.

Kansas Medical Society Journal, Topeka

August, 1921, **12**, No. 8

Modern Prostatectomy. H. Wilkinson, Kansas City.—p. 249.
Modern Conception of Diabetes Mellitus. C. F. Menninger, Topeka. —p. 254.
Diarrhea in Bottle-Fed Infants. H. L. Dwyer, Kansas City.—p. 257.
Postoperative Complications and Their Care. R. W. Jones, Winfield. p. 260.
Intussusception. J. T. Scott, St. John.—p. 263.

Medical Record, New York

Aug. 20, 1921, **100**, No. 8

Prevention of Venereal Infection. T. E. Satterthwaite, New York. —p. 311.
Endocrine Therapy. J. M. Anders, Philadelphia.—p. 314.
Therapeutic Uses of Pituitary Gland Substance. B. R. Tucker, Richmond, Va.—p. 316.
Morbidity After Operative Treatment in Abdominal Surgery. W. W. Babcock, Philadelphia.—p. 319.
Promoral Center; Its Practical Relations. W. Browning, Brooklyn. —p. 321.
Treatment of Functional Disorders of Colon by Massage. R. Floyd, New York.—p. 324.
*Iodin-Phosphoric Acid Reaction in Urine in Syphilis. R. A. Kilduffe, Pittsburgh.—p. 329.

Iodin-Phosphoric Acid Reaction in Urine in Syphilis.—Among the numerous "short cuts" proposed for the diagnosis of syphilis is a urine reaction originated by Gray. Two reagents are required: A 10 per cent. solution of phosphoric acid and a solution of "resublimed iodin in chloroform or carbon tetrachlorid." In the series reported by Kilduffe the iodin was used as a saturated solution in chloroform because it was found that solutions of less concentration gave invariably "positive" results. The urine, to be suitable for the test, must be fresh, with a specific gravity of less than 1.016, of acid reaction, and free from sugar. The presence of sugar, the recent ingestion of alcohol, or polyuria due to diuretics or the excessive ingestion of fluids all interfere with the test, so that the reaction is restricted to such cases as comply with the above restrictions. The technic is as follows: To 6 c.c. of urine in a test tube add 1 c.c. of the iodin reagent and shake. The chloroform, after settling to the bottom, is either a pearly white (negative reaction) or pink or purple, which may be a positive reaction. If there is color in the chloroform layer, add 1 c.c. of the phosphoric acid solution and again shake. If the chloroform layer is

decolorized the reaction is negative. In the series of 352 urines tested there were fifty-six positive urine reactions, excluding the fallacious "positives." The Wassermann test was positive in ten of these cases only, the serum being anticomplementary in one other. In the remaining forty-five cases there was neither history, clinical signs, nor laboratory evidence of syphilis. There were thirty-two cases of syphilis in the series, the Wassermann and history being positive. The urine reaction was negative (Wassermann four plus) in nineteen and positive in thirteen. Owing to the comparatively few specimens found suitable for the reaction and the discordant and unreliable results obtained the investigation was not carried further. The urine reaction described Kilduffe says is unreliable and valueless as a means of diagnosis in syphilis.

Military Surgeon, Washington, D. C.

August, 1921, **49**, No. 2

President's Address: Some Influences of World War on Future of National Health. J. W. Kerr.—p. 125.
Etiology of Scurvy. E. B. Vedder.—p. 133.
Responsibility of Medical Corps in Proper Physical Development of Personnel of Army. J. E. Goldthwait.—p. 151.
Observations in Italy. F. L. Pleadwell.—p. 155.
Etiology and Prevention of Injuries to Eye. H. V. Würdemann.—p. 176.
American Relief Work in Serbia. E. E. Hume.—p. 188.
Mental Examinations of Aliens and Their Bearing on Potential Military Strength of Nation. H. V. Wildman.—p. 202.

Missouri State Medical Association Journal, St. Louis

August, 1921, **18**, No. 8

Betterment of Hospital Conditions. H. E. Pearse, Kansas City.—p. 259.
Hospital Diets. W. Baumgarten, W. Fischel and H. W. Soper, St. Louis.—p. 263.
Autistic Thinking. G. W. Robinson, Kansas City.—p. 270.
Various Operative Procedures Indicated for Different Kinds of Goiter. W. Bartlett, St. Louis.—p. 275.
*Primary Mesothelioma of Pleura: Report of Case. E. A. Wood and A. L. Walter, Sedalia.—p. 277.
Treatment of Varicose Ulcers. W. L. Bandon, Poplar Bluff.—p. 281.

Primary Mesothelioma of Pleura.—A man, aged 45, sustained an injury crushing the left side of the chest slightly when he was 22. One year ago he first complained of pain in the lower left chest in the postaxillary line, accentuated by deep breathing. A diagnosis of acute pleurisy was made and the chest strapped with adhesive strips, relieving the pain immediately. The patient was not seen again for thirty days during which period he took treatments from a mechanotherapist. He returned complaining of shortness of breath, cough and pain in the left chest. Examination now revealed signs of fluid extending from the diaphragm to the level of the fourth rib and the diagnosis was verified by the fluoroscope. The chest was aspirated and three and one-half quarts of a pale straw-colored fluid were withdrawn. The fluid was centrifuged and the sediment stained with Wright's stain and found to contain many small mononuclear lymphocytes, but no polymorphonuclears. This drainage afforded great relief for only a few days. The patient's condition grew worse and after about sixty days he died of cardiac failure. The left pleural cavity contained a firm whitish growth which was pronounced a mesothelioma. A thorough search was made for a possible primary growth in some other organ and none was found. The feature of paramount interest presented by this case is the nature of the fluid withdrawn at thoracentesis. Formed rapidly and in large quantity, as much as three quarts accumulating in seven days. Although aspirated eight times, at no time was a bloody fluid found. Furthermore, cytologic examination of the fluid showed only small mononuclear lymphocytes with an occasional pus cell.

Neurological Bulletin, New York

June, 1921, **3**, No. 6

Static or Posture System and Its Relation to Postural Hypertonic States of Skeletal Muscles. J. R. Hunt, New York.—p. 207.
Extensive Spinal Arachnoid Fibroblastoma. H. S. Howe, New York.—p. 216.
Defective Development in Cerebro-Cerebellar Connections. J. Rosett, New York.—p. 230.

New Jersey Medical Society Journal, Orange

August, 1921, **18**, No. 8

Carcinoma of Rectum and Pelvic Colon; Clinical Study. G. N. J. Sommer, Trenton.—p. 237.
Nursing Problem in New Jersey. G. K. Dickinson, Jersey City.—p. 239.
Management of Syphilis at Bellevue Hospital. M. B. Parounagian, New York.—p. 242.
Pathology and Treatment of Chronic Gonorrheal Urethritis. E. L. Keyes, Jr., New York.—p. 245.
Some Complications and Sequelae of Gonorrhea. C. L. Begg, New York.—p. 247.
Louis Pasteur. J. F. Hagerty, Newark.—p. 249.
Medical Treatment and Modern Training in State Institutions. B. G. Lewis.—p. 256.

New York Medical Journal

Aug. 3, 1921, **114**, No. 3

*Elements of Diet in Infancy; Employment of Czerny and Kleinschmidt's Butter Flour Mixture. J. P. C. Griffith and A. G. Mitchell, Philadelphia.—p. 137.
Diagnosis of Summer Diarrhea. J. C. Gittings, Philadelphia.—p. 145.
*Use and Abuse of Drugs in Summer Diarrhea. J. F. Sinclair, Philadelphia.—p. 148.
Dietetic Management of Summer Diarrhea. W. N. Bradley, Philadelphia.—p. 150.
Water Treatment in Diarrhea. J. D. Donnelly, Philadelphia.—p. 151.
General and Dietetic Treatment of Eczema. J. P. C. Griffith, Philadelphia.—p. 153.
Management of Babies and Children Suffering from Summer Diarrhea. A. G. Mitchell, Philadelphia.—p. 155.
Treatment of Nutritional Disorders in Artificially Fed Infants. C. Herrman, New York.—p. 158.
Unemphasized Essentials in Infant Feeding. J. R. Gerstley, Chicago.—p. 160.
Relation of Herpes Zoster to Chickenpox. W. M. Kraus, New York.—p. 162.
Management of Children Presenting the Postepidemic Encephalitis Syndrome. S. R. Leahy and I. J. Sands, New York.—p. 166.
Remarks on Nephritis in Children. A. Hymanson, New York.—p. 169.
Artificial Feeding of Normal Infants. W. L. Rost, New York.—p. 172.
Clinical and Therapeutic Observations on Biliary Disorders in Children. J. Epstein, New York.—p. 174.
Prevention of Contagious and Infectious Diseases in Children's Orthopedic Ward. W. G. Elmer, Philadelphia.—p. 176.
Intussusception in an Infant Six and a Half Months's Old. S. Rottenberg and G. M. Schwartz, New York.—p. 177.

Butter-Flour Mixture for Infants.—A review of the literature and personal experience have convinced Griffith and Mitchell that when fed with the butter-flour food infants may often tolerate fat in a manner which can be accomplished probably by no other means. The truly remarkable results which often follow are a strong proof of the great need which the infant's economy possesses for a food containing a sufficiently large amount of fat.

Drugs in Summer Diarrhea.—Sinclair condemns the misuse of opium, calomel, and castor oil in these cases. Where the symptoms and signs point to an irritation rather than to an inflammation of the intestinal tract a prompt and energetic use of castor oil, 1 to 4 drams according to the age of the child, or calomel in divided doses from 1/10 to 1/4 of a grain at intervals of one half hour to one hour, until 1 grain has been given, followed by calcined magnesia, from 5 to 30 grains of milk of magnesia, from 1/2 to 1 1/2 drams is indicated and this medication should be followed by a period of temporary starvation. Occasionally, either the subcarbonate or the subgallate of bismuth may be required for a short period in doses of from 10 to 20 grains every three hours, or 1 dram doses of chalk mixture every two hours may suffice. In the inflammatory or infectious types the preliminary use of castor oil, or calomel followed by magnesia, is indicated and should precede brief periods of starvation. In the milder of these cases chalk mixture may be employed with advantage while the more severe cases call for the administration of bismuth subcarbonate or subgallate in full doses. If these cases do not promptly show an abatement of the diarrhea and especially if there are evidences of excessive peristalsis and pain, opium in the form of camphorated tincture from 5 to 15 drops, Dover's powder, 1/2 grain, or deodorized tincture of opium is indicated. In case of tenesmus the starch enema with 5 to 10 drops of tincture of opium to the ounce of starch water is usually efficient in relieving this distressing symptom. If stimulation is needed, the best drugs are caffein sodium benzoate from 1.2 to 1 grain, tincture of digitalis, from 1/4 to 1 minim, and brandy from 5 to 20 minims well diluted in water. In a threatened collapse, camphorated oil, hypodermically is generally employed. To anticipate and prevent acidosis administer sodium bcarbonate in 15 grain doses every three hours routinely to all infants who are more than mildly ill with inflammatory or infectious forms of gastro-intestinal disease. Anemia calls for Fowler's solution, or the lactate or citrate of iron, or the green citrate of iron.

New York State Journal of Medicine, New York

August, 1921, **21**, No. 8

Tumors of Kidney; Report of Three Cases. T. F. Laurie, Syracuse, N. Y.—p. 279.
Diagnosis of Myocardial Disease. H. E. B. Pardee, New York.—p. 282.
Ocular Symptoms of Wood Alcohol Toxemia. S. L. Ziegler, Philadelphia.—p. 288
Nature of Hypertension H. A. Christian, Boston.—p. 292.
Treatment of Hypertension. W. D. Alsever, Syracuse, N. Y.—p. 294.
*Studies of Humoral Antibodies in Tuberculosis. S. A. Petroff and G. G. Ornstein, Trudeau Sanatorium, N. Y.—p. 299.

Humoral Antibodies in Tuberculosis.—The most important facts brought out by Petroff and Ornstein are: The importance of the antigens is indisputable. The protein fraction of the antigen constitutes the strongest antigenic property. The best antigen used by us is the glycerin extract which we have modified of late. Antigen and antibodies are colloids. That the fixation of complement may occur even without the appearance of a precipitate, cannot definitely be proven. We know that albumin particles may aggregate into larger particles without a precipitation, provided the excess of one of the precipitin-forming colloids acts as a protective colloid. On the other hand, it has not yet really been demonstrated that a physical fixation and not an irreversible chemical change occurs in complement fixation. Antibodies are either globulins or absorbed and carried down with the globulin fraction. Roentgen ray and ultraviolet rays have little effect in causing their destruction. Direct sunlight apparently destroys the antibodies in a short time. The authors have made an attempt to determine the electrical change of the antigen and the antibodies by the study of cataphoresis. Both being amphoteric colloids they found that they are influenced by the H- or OH-ion concentration and may move either to positive or negative pole. Their electric charge is very small and for this reason either of these ions may reverse their electric charge. Precipitins and agglutinins have been studied in tuberculosis. These two antibodies are closely related.

Philippine Journal of Science, Manila

April, 1921, **18**, No. 4

Structure of Electron. G. A. Perkins.—p. 325.
Absolute Units and Relativity Principle. G. A. Perkins.—p. 341.
New Coleoptera from Philippine Islands. W. S. Fisher.—p. 349.
Case of Human Coccidiosis Detected in Philippine Islands, with Remarks on Development and Vitality of Cysts of Isospora Hominis (Rivolta). F. G. Haughwout.—p. 449.

Virginia Medical Monthly, Richmond

August, 1921, **48**, No. 5

Late Results of Series of Head Injuries. C. C. Coleman, Richmond.—p. 235.
*Laryngeal Tuberculosis with Special Reference to Sunlight Treatment. F. B. Stafford, Charlottesville.—p. 239.
Opium—Its Uses and Abuses. G. C. Woodson, Richmond.—p. 242.
Neurasthenia. W. C. Ashworth, Greensboro, N. C.—p. 247.
Appliance for Holding Instruments Grouped While Operating J. W. Henson, Richmond.—p. 249.
Get the Habit—Essential Factor in Fight Against Tuberculosis. S. Harnsberger, Warrenton.—p. 252.
Meckel's Diverticulum: Report of Six Cases. C. Williams, Richmond.—p. 255.
Municipal Control of Tuberculosis. C. L. Harrell, Norfolk.—p. 257.
Status of General Practitioner As It is and as It Should Be. J. A. Overlay, Turbeville.—p. 260.
Dearth of Rural Physicians. C. B. Greear, Honaker.—p. 261.
Vertigo—Its Causes and Diagnosis. W. C. Moomaw, Petersburg.—p. 263.
Epidemic Encephalitis. Report of a Case. W. P. Jackson, Roanoke.—p. 265.
Management of Certain Types of Diabetes Mellitus. W. B. Blanton, Richmond.—p. 267.
Mission of Medicine. M. J. Payne, Staunton.—p. 271.
Analysis and Tractment of Case of Juvenile Aphasia. E. B. McCready, Pittsburgh, and A. B. Colcord, Kenosha, Wis.—p. 273.
*Syphilis of Stomach. F. C. Rinker, Norfolk.—p. 278.
Gastro-Enteroptosis. M. O. Burke, Richmond.—p. 280.

Heliotherapy in Laryngeal Tuberculosis.—Out of seven cases treated by Stafford, four have shown a definite improvement. In the remaining three no improvement was noted, but their chest conditions were well advanced and their general condition so unfavorable that it would not permit their sitting up for the successful and practicable application of the treatment. Of the four that were benefited two had only slight lesions of the throat, but were suffering from active pulmonary lesions. The remaining two had extensive ulceration and destruction of the laryngeal structures and extensive pulmonary lesions as well.

Syphilis of Stomach.—Of the five cases reported by Rinker four patients complained of pain in the pit of the stomach and on the right side; one had nausea without vomiting; one complained of vomiting and said he had vomited blood several times (this patient also suffered from marked weakness, while the others felt well except for their gastric symptoms); all of them had burning in the stomach when they went without food; four were relieved of the burning by taking either food or soda, this relief lasting only for one or two hours; all had dyspnea on exertion; two were disturbed frequently by accumulations of gas in the stomach and intestines; three had lost from 20 to 35 pounds of weight in less than a year's time; one had gained in weight; one had had jaundice within two months prior to seeking advice; all had been somewhat nervous for several months, but the nervousness was not extreme and the only thing that disturbed their sleep was either pain or nausea; antisyphilitic treatment was effective in these cases.

Wisconsin Medical Journal, Milwaukee

July, 1921, **20**, No. 2

Roentgen-Ray Examination of Chest and Roentgen-Ray Classification of Pulmonary Tuberculosis. K. Dunham, Cincinnati.—p. 49.
Influence of Certain Cardiovascular Conditions on Surgical Risk. A. T. Holbrook, Milwaukee.—p. 58.
When to Operate on Mastoid in Children. E. H. Brooks, Appleton.—p. 66.
Importance of Early Incision of Membranum Tympani in Acute Otitis Media with Profuse Exudate. L. P. Allem, Oshkosh.—p. 69.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

July, 1921, No. 252

Case of Large Penetrating Ulcer of Lesser Curvature. F. Hernaman-Johnson.—p. 39.
Stereoscopic Roentgenoscopy and New Apparatus for Its Application. J. Van Ebbenhorst Tengbergen.—p. 42.
Intestinal Radiography for Chronic Appendicitis. L. E. Ellis.—p. 47.

British Journal of Experimental Pathology, London

August, 1921, **2**, No. 4

*Nature and Systematic Position of B. Paratyphosus C. F. W. Andrewes and S. Neave.—p. 157.
Characters of Cleavage Products of Certain Bacteria, with Special Reference to Their Toxicity and Antigenic Properties. S. R. Douglas.—p. 175.
Occurrence of Hemolytic Substances in Normal Urine. E. Ponder.—p. 192.
*Physicochemical State of Sugar in Blood. K. Onohara.—p. 194.
*Grouping of Influenza Bacilli. S. Yabe.—p. 197.

Nature and Systematic Position of B. Paratyphosus C.—A new form of paratyphoid fever has been observed during the war by many investigators, chiefly in Eastern Europe and in Asia. The causal organism, *B. paratyphosus C*, is distinct from *B. paratyphosus A* and *B*, though presenting relationship to the latter. Andrews and Neave described a case of paratyphoid C occurring in England. The bacillus isolated is compared with other members of the Salmonella group in detail. In its cultural and fermentative characters *B. paratyphosus C* is shown to differ from *B. paratyphosus B* in its failure to ferment inosite and in its slower rate of alkali production. It differs from *B. suipestifer* in fermenting arabinose and dulcite. *B. paratyphosus C* is shown to belong serologically to Group I suipestifers, in spite of the divergence in cultural characters. Different strains of *B. paratyphosus C* vary in their relation to *B. paratyphosus B*. In some the B element is absent, in others very obvious. An example of each variety was isolated from the case described, and it is shown that the strain which at first showed no relation to *B. paratyphosus B* gradually underwent a serologic change, acquiring the property of being partially agglutinated by a paratyphoid B serum.

Physicochemical State of Sugar in Blood.—It is assumed by Onohara that sugar in the circulating blood is present in the same physicochemical character as in the solution of free

glucose. In other words, it must be present in the circulating blood in the form of free sugar.

Grouping of Influenza Bacilli.—Influenza bacilli can be divided definitely into two groups according to the character of indol formation. Out of 29 strains examined by Yabe, 18 strains (62 per cent.) form indol. No intermediate strains are found. By morphologic and immunologic study it is impossible to divide influenza bacilli into groups, because there are found as many intermediate strains as there are strains examined.

British Medical Journal, London

August 6, 1921, No. 3162

Visceral Syphilis. T. C. Allbutt.—p. 177.
Syphilis of Heart. J. Cowan and J. K. Rennie.—p. 184.
Anemias of Syphilis. J. Eason.—p. 186.
Syphilitic Aortitis. A. G. Gibson.—p. 188.
Relation of Medical Profession to Local Authorities in Respect of Rate-Provided Hospitals and Clinics. G. Newman.—p. 189.

Journal of Neurology and Psychopathology, Bristol

August, 1921, **2**, No. 6

*Froin's Syndrome; Its Relation to Allied Conditions in Cerebrospinal Fluid. J. G. Greenfield.—p. 105.
Case of Bilateral Eighth Nerve Tumors Associated with Multiple Neurofibromas and Multiple Endotheliomas of Meninges. C. P. Symonds. —p. 142.
Case of Catatonia. R. C. Turnbull.—p. 154.
Recurrent Hypertrophic Neuritis. F. J. Nattrass.—p. 159.

Froin's Syndrome.—The syndrome of Froin consists essentially in the approximation of the character of the fluid obtained by lumbar puncture to that of blood plasma. This approximation is never so complete as to render it identical. This change takes place characteristically when the fluid in the lumbar cul-de-sac is completely cut off from communication with the fluid in the ventricle and cisterna magna. This may be produced by tumors or other disease in the bones of the spine, by tumors of the meninges or cord, or by inflammatory adhesions in the pia-arachnoid membranes. Illustrative cases are cited by Greenfield. The degree of change in the fluid depends more on the completeness of this block than on the nature of the blocking process. But certain constituents of the fluid may vary in relation to the nature of the obstruction. The production of the syndrome is aided by venous congestion below the level of a compression, or by inflammation in the meninges and cord below an area of meningeal adhesion. It is not necessary to postulate any obstruction of the perineural or perivascular lymphatics. The lymph which reaches the subarachnoid space along them aids in the production of the syndrome. Acute peripheral neuritis may in fact itself produce an analogous condition in the cerebrospinal fluid.

Journal of State Medicine, London

August, 1921, **29**, No. 8

Housing Problem in Its Various Bearings. G. McCrae.—p. 225.
Necessity for Greater Attention in Industry to Maintenance of Efficiency and Prevention of Ill Health. E. L. Collis.—p. 229.
Occurrence of Anthrax in Navy; Its Diagnosis and Prevention. P. W. Bassett-Smith.—p. 249.

Lancet, London

Aug. 6, 1921, **2**, No. 5110

Objective Study of Neurosis. F. L. Golla.—p. 265.
*Administration of Hydrochloric Acid. J. C. McClure and H. A. Ellis, London.—p. 271.
*Action and Uses of Kaolin in Treatment of Asiatic Cholera. R. R. Walker.—p. 273.
Inadequate Attendance of Male Syphilitic Out-Patient. R. E. Roberts. —p. 277.

Dilute Hydrochloric Acid Not Harmless.—McClure and Ellis assert that dilute hydrochloric acid is not, in acid sensitive cases at least, the harmless tonic the books would have us believe it to be, and they are sure that when acid is being administered the blood pressure should always be estimated from time to time, and the urine be occasionally tested for its acid and ammonia relations. In cases in which an early condition of renal insufficiency is suspected, the "rest urine" should be compared with the "alkaline tide urine" in respect of their relative acidity. Acid largely regulates the amount and character of the urine excreted by its action on the renal tissue. This is largely controlled by the increasing acidity of the blood (acidemia) tending to raise the blood pressure; otherwise the kidneys would not be able to maintain the necessary balance between acid and alkali. The regulation is so delicate that in health the normal variation of blood pressure is not apparent, other causes of increased pressure contributing to its concealment. When impairment takes place owing to the breakdown of the chemical balance, general acid sensitiveness occurs, and this condition is accompanied by a rise in blood pressure. If the structure of the renal cells is not injured this is not maintained unless the acidemia continues. If the structure of the cells is injured, the rise of the blood pressure is more or less permanent until other forms of compensation are established. When this structural alteration has occurred, acid administration and acid feeding are contraindicated. When acid is being administered in doubtful cases the blood pressure should always be observed, to avoid the danger of overdose. Overdose is also indicated by the "alkaline tide urine" approaching the "rest urine" in character. McClure and Ellis are of the opinion that the reason why, during treatment with acid, a rise in the blood pressure is not easily reversible, i. e., followed by a more or less similar fall, while this subsequent fall in blood pressure is not easily reversible—is because acidosis may be transferred to the tissues, the acidemia thus being changed into a histo-acidosis, and this causes a fall in the blood pressure. If a histo-acidosis be established it is not easy to raise the blood pressure again, because of the difficulty either of raising the acid content of the blood above that of the tissues or of reducing the acidity of the tissues below that of the blood, the fluid pressure thus persisting toward the tissues, while the balance is against the blood.

Kaolin in Cholera.—In a series of seventy-five cases treated by Walker there were no fatal results, and this result was obtained in spite of the fact that many of the patients arrived at hospital in a condition of extreme collapse. The method of administration was somewhat different from stump's methods. A large supply of half-and-half suspension was placed near the patient and the nurse was told to encourage the patient to take as much as possible. At the commencement large quantities could be tolerated, but as the vomiting and diarrhea ceased the liquid was refused. In all cases food was withheld from eighteen to twenty-four hours, then rice water was allowed, and later milk and rice water. In all cases rectal lavage was done with kaolin solution thickened until it would comfortably pass through the rectal tube. At first none was returned. Later on much was retained. If the condition of the patient was precarious on arrival at hospital, it was found that subcutaneous bilateral infusion usually restored that patient sufficiently to take kaolin by the mouth. In desperate cases hypertonic salt solution was given intravenously, but no such large quantities are were used before the introduction of the kaolin treatment (2 liters). The action of kaolin is twofold: (1) mechanical; (2) adsorptive.

Aug. 13, 1921, **2**, No. 7

Psychologic Medicine: Its Position in Medical and Allied Services. C. H. Bond.—p. 319.
*Preservation of Lemon Juice and Prevention of Scurvy. P. W. Bassett-Smith.—p. 321.
*Scurvy: System of Prevention for Polar Expedition, Based on Present-Day Knowledge. A. H. Macklin and L. D. A. Hussey.—p. 322.
Anesthesia with Nitrous Oxid and Oxygen Under Pressure. H. H. Dale and L. Hill.—p. 326.
*Nausea and Vomiting in Pregnancy. V. J. Harding.—p. 327.
*Case of Abscess of Breast Occurring in Typhoid Carrier. S. C. Dyke. —p. 331.
Schistosoma Mansoni in South Africa. F. G. Cawston.—p. 332.
*Case of Human Anthrax in Buganda Kingdom. W. L. Peacock and H. L. Duke.—p. 332.

Lemon Juice Tablets to Prevent Scurvy.—Tablets of dried lemon juice prepared in the cold, Smith asserts, retained their efficiency for over twelve months. Commercial lemon juice made from the whole fruit received from Messina, which had not been specially protected from heat, had lost all its anti-scorbutic properties when tested in England. Tinned tomatoes in doses of 4 c.c. act efficiently against scurvy in guinea-pigs, both as a prophylactic and a curative agent.

Prevention of Scurvy.—Great heed is given at this time to the subject of scurvy; because of the projected polar expedition attention is particularly directed by Macklin and Hussey

toward scurvy and the antiscurvy or water-soluble C vitamin, but it is realized that there is a close relationship between this and other deficiency diseases, especially beriberi. In so far as they can be separated clinically, however, the latter presents for its prevention a much less difficult problem. The antiberiberi (antineuritic or water-soluble B) vitamin is much more resistant to extraneous factors than the antiscurvy vitamin, and foods in which it maintains its activity are more easily obtainable. Its elimination is aimed at on the ship by provision of the following foods: rice (containing germ), whole meal flour, dried eggs, dried peas, beans and lentils, fresh meat (including the sweetbreads, liver, and brains of any animals killed), and marmite is added to the sledging ration, which in itself probably contains active antiberiberi vitamin. During the course of the expedition fresh penguin eggs will be freely used if obtainable.

Vomiting of Pregnancy.—It is proposed by Harding that the primary etiologic factor in the nausea and vomiting of pregnancy is lack of glycogen in the maternal liver. Secondary factors are intestinal intoxication and neurosis. As the condition progresses starvation and possibly dehydration intensify the symptoms to a degree known as pernicious vomiting. The correct therapy consists in the recognition of the value of the factors and bringing them under proper control by the following means: (*a*) the use of glucose to restore and maintain the glycogen content of the maternal liver; (*b*) the keeping open of the bowel; (*c*) rest and isolation, with a cautious use of sedatives to control the neurosis; (*d*) the use of water to combat any dehydration.

Typhoid Abscess of Breast.—The points of interest in Dyke's case are: (1) the occurrence of a typhoid abscess in the breast, having, so far as could be made out, no association with underlying bone; (2) the fact that the patient, although a carrier, was unaware that she had ever had typhoid fever, and (3) the absence of typhoid agglutinins in the patient's own serum.

Case of Human Anthrax.—A man whose work had nothing to do with hides or cattle, had cut up some of the flesh of a bullock. Three days later he noticed a small papule on his cheek which he scratched, and it had gone on increasing in size from that time up to his admission to hospital some six days later. On admission the pustule was at once excised and the wound painted with pure phenol, partly closed by stitches, and a wet phenol dressing applied. A smear examined immediately after the excision showed typical anthrax bacilli in pure culture.

Archives des Maladies du Cœur, etc., Paris

June, 1921, **14**, No. 6

*Nomenclature of Heart Sounds and Murmurs. W. Janowski.—p. 241.
*Acute Pulmonary Edema with Valvular Disease. L. Gallavardin.—p. 262.
Origin of Vasomotor Nerves of Arm. J. Heitz.—p. 274.
*Acute Leukemia. J. Sabrazès.—p. 282.

Nomenclature of Heart Sounds and Murmurs.—Janowski styles the period of closure of the heart valves and increase in the intraventricular pressure, the protosystole, and the period of expulsion of the blood, the telesystolic period. All the sounds and murmurs fall into one or the other of these periods unless a murmur is continuous, in which case he calls it holosystolic. Modern methods have demonstrated that part of the systole is accomplished noiselessly, at least at certain points in the heart area. He reproduces the tracings in some typical cases of organic and functional murmurs, analyzing them from the differential standpoint.

Pulmonary Edema in Valvular Disease.—Gallavardin refers to endocardiac valvular disease outside of pregnancy, and gives the details of four cases following rheumatism; four of chronic mitral or aortic insufficiency, and four of pure mitral stenosis with edema mainly from insufficiency of the left auricle. With the edematous form of pure mitral stenosis the heart action is generally regular, and the minor attacks are brought on by physical effort, a hot bath or other exertion; the more serious attacks by indetermined causes. In one of the rheumatismal cases, frequent attacks of pulmonary edema developed during three years but then the tendency seemed to subside and the case now presents the ordinary clinical picture of mitral insufficiency. The attacks of edema were elicited by slight exertion, and they also sometimes occurred spontaneously at night, but there has been no recurrence of the edema during the last seven years. Venesection and digitalis, alone or together, are the main reliance.

Acute Leukemia.—Sabrazès' experience has confirmed that acute leukemia of the hematogonia type kills in a few days; of the myeloblast or lymphoblast type in a few weeks; of the myelocyte or lymphocyte type, in two or three months, while myeloid leukemia of rapid course may not prove fatal for a year. We are powerless in the presence of acute leukemia.

Archives de Médecine des Enfants, Paris

June, 1921, **24**, No. 6

*Epidemic Meningitis. K. Lewkowicz.—p. 329. Conc'n No. 7, p. 407.
Harmonious Growth of Children. Dumoutet.—p. 352.
Generalized Neurofibromatosis. J. Comby.—p. 362.
Mongolian Blue Spot in Two Children. J. Comby.—p. 366.
Infant Welfare Work. J. Comby.—p. 369.

Epidemic Meningitis.—This is Lewkowicz' fifth communication on the subject of specific treatment of epidemic meningitis at all ages. He emphasizes that the antiserum has a sure therapeutic action if it can reach all the nests of meningococci in the ventricles. Obstruction to the circulation of cerebrospinal fluid should be suspected when there is a difference in pressure and in the albumin content of the fluid in the ventricle and in the spinal subarachnoid space. There is less secretion of fluid in epidemic meningitis than normal, and this is one of the causes of stagnation and accumulation of thick pus in the ventricles. By puncturing the ventricle, we can estimate its capacity at the time and thus detect stenosis of the ventricle, and also detect hydrocephalus in its incipiency and trace its course. Inflammatory hydrocephalus is a consequence of the edema of the brain with epidemic meningitis. From the third to the tenth year the brain is generally vigorous and resistant enough to stand the pressure from the edema, but in artificially fed infants the brain tissue yields and, even in the breast fed, abnormal laxity of the brain tissue is not uncommon, as also in most children over 10. He reiterates in conclusion that the most effectual way to introduce the antiserum, especially when there is evidence of stenosis in the ventricle, is to make the injection directly into the lower portion of the lateral ventricle. The needle is inserted transversely to the skull on a line joining the parietal eminence with the external auditory meatus, opposite the tip of the ear, or 1 to 4 mm. above it. The needle has to be introduced from one fourth to one third of the transverse diameter of the skull at this point. This route avoids the motor zone, the needle passing by the second frontal convolution, and the needle does not have to be pushed in so far as for puncture of the corpus callosum. A decompressive operation should be considered in extreme cases of cerebral edema. On account of the grave dangers when the infectious process drags too long, treatment, especially for infants, should be prompt and energetic. He gives the minute details and charts of 29 cases, which brings to 114 the number he has thus analyzed. Only 3 of the total 31 infants recovered completely. A number of others recovered from the meningitis but succumbed to the effects of the hydrocephalus or the progressive spastic paralysis. It seems evident that there is scarcely a chance for complete recovery unless the infants are breast fed, and not always then.

Bulletin de l'Académie de Médecine, Paris

July 19, 1921, **86**, No. 29

*Diabetes of Bearded Women. C. Achard and J. Thiers.—p. 51.
*Surgical Treatment of Angina Pectoris. T. Jonnesco.—p. 67.
Decline of Breast Nursing. V. Wallich.—p. 71.
*Spinal Anesthesia. Mériel and Lefebvre.—p. 73.
*Necrotic Pneumonia. M. Letulle and F. Bezançon.—p. 77.

Hirsutism Plus Diabetes.—Achard and Thiers discuss whether this combination is a special form of virilism or a special form of diabetes. A case is described in which the beard began to grow at the age of 9 or 10 and at 69 transient diabetes was found on the occasion of a fracture. The woman had a heavy moustache and beard and eyebrows, and necropsy two years later showed total sclerosis of the ovaries, hyperplasia of the suprarenals, chronic thyroiditis, and various changes in the pancreas. Comparison of this case with those on record confirms the polyglandular nature of the

hirsutism; the glycolytic insufficiency is only a variable and inconstant element in the picture of feminine hirsutism.

Surgical Treatment of Angina Pectoris.—Jonnesco reports a second case in which he resected the entire cervical sympathetic chain on the left side to interrupt communication between the heart and aortic plexus and the nerve centers through the intermediation of the cardiac nerves originating in the first and second cervical ganglia. The immediate results were excellent; the interval since the operation in his first case is now over five years, and there has been no recurrence of the angina pectoris. In the discussion that followed, Vaquez remarked that the operation has more than a palliative action, as the fatal outcome is due to auricular fibrillation and heart block, or to reflex action. Suppression of the paroxysms of pain does away with the usual cause of the sudden death in the cases of aortitis affecting mainly the origin of the vessel, where the network of nerves is particularly close, and the pain exceptionally severe. Tuffier also reported three successful operative cases; in the last one he followed Jonnesco's technic. He noted some transient disturbance in circulation and breathing as he pulled on the ganglion in removing it, and suggests that regional anesthesia might be preferable. The operation was easy, and seemed to be harmless by either the cervical or thoracic route, but the latter gives better oversight.

Spinal Anesthesia.—In the experiences of Mériel and Lefebvre with spinal anesthesia in over 1,000 cases, the Delmas technic proved its superiority. There never were any mishaps, and since the practice has been adopted of a preliminary intramuscular injection of 10 c.c. of camphorated oil and 2 ampules of caffein, there have been scarcely any instances of lipothymia. The "abdominal silence" is one of the great advantages of spinal anesthesia.

Dissecting Necrotic Pneumonia.—Two cases are described and the points are emphasized which distinguish this disease of the lung from a gangrenous process. No pneumococci were found and the few pneumobacilli or streptococci discovered seemed unable to explain the development of the large necrotic cavity in a few weeks.

Bulletin Médical, Paris

July 23, 1921, **35**, No. 30

*Hypertrophy of the Prostate a General Disease. Pousson.—p. 595.

Hypertrophy of the Prostate a General Disease.—Pousson comments on the disturbances from resorption of the toxic products of the adenomatous prostate. This newly recognized element in the clinical picture of hypertrophied prostate explains its noxious action on the general health, when superposed on the disturbances from the inefficient elimination of waste products by the kidneys. Even when the urine can be properly voided, the hypertrophied prostate is a source of danger easily done away with by prostatectomy.

July 30, 1921, **35**, No. 31

Fasting in Treatment of Diabetes. M. Labbé.—p. 613.
*Tests for Glycemia. F. Nepveux.—p. 616.
*Surgery and Diabetes. H. Bith.—p. 620.
*Dieting in Diabetes. H. Chabanier, M. Lebert and C. L-Onell.—p. 622.

Estimation of Glycemia.—Labbé gives an illustrated description of the Bang micromethod.

Surgery and Diabetes.—Bith reiterates the necessity for preparing the diabetic for an operation. Local or regional anesthesia should be preferred, and denutrition and acidosis combated before attempting any surgical measures.

Carbohydrates in Diabetes.—Restriction of carbohydrates in diabetes does not modify the diabetes itself, unless possibly aggravating it, according to the research here reported. It seems to act exclusively on one secondary phenomenon, namely, the manner in which glucose is eliminated by the kidneys. It seems to fasten the threshold to the glycemia. The threshold follows the spontaneous variations of the glycemia. The "tolerance" of the diabetic, the writers declare, is a purely renal phenomenon, without any direct relation to the essential derangement which constitutes the diabetes. The same result can be accomplished in other ways: Anything that reduces the fluctuations of the threshold—if not injurious otherwise—seems to benefit in diabetes.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 15, 1921, **45**, No. 25

*Tubercle Bacilli in Duodenum. P. Carnot and E. Libert.—p. 1101.
*Relapsing Fever. A. Cawadias.—p. 1105 and p. 1107.
*Cerebromeningeal Syphilis. A. Florand and P. Nicaud.—p. 1110.
Pneumonia with Terminal Mycitis. Idem.—p. 1112.
Cerebral Rheumatism. R. Mignot and L. Marchand.—p. 1115.
Subacute Forms of Epidemic Encephalitis. H. Eschbach.—p. 1119.
*Cavity Sounds Propagated to Sound Lung. Salomon.—p. 1121.
Encephalomalacia in Acute Tuberculous Meningitis. L. Lortat-Jacob and R. Turpin.—p. 1128.
Cerium Salts in Tuberculous Rheumatism. Oddo and Giraud.—p. 1131.
Syphilitic Fever. G. Cautier.—p. 1134.
Herpes in Epidemic Encephalitis. A. Netter.—p. 1135.
*The Epinephrin Thyroid Test. M. Garnier and S. Bloch.—p. 1137.
*Quinin Amaurosis. P. Bethery and Cambressédes.—p. 1142.
Mediastinal Dermoid Cyst. P. Duval and A. Clerc.—p. 1147.
Congenital Aortic Stenosis in Child with Inherited Syphilis. L. Queyrat and Mouquin.—p. 1152.

Tubercle Bacilli in Duodenal Fluid.—Carnot and Libert found tubercle bacilli in the fluid obtained with the duodenal tube in three of seven cases. This testifies that tubercle bacilli are eliminated in the bile and pancreatic juice, as none of these three patients had tubercle bacilli in their sputum. Possibly a cholagog might have increased the positive findings. Repeated tests of eleven nontuberculous subjects failed to reveal any acid-resisting bacilli of any kind. They state that this *biliscopic* may prove of practical import.

The Hemorrhagic Form of Relapsing Fever.—Two cases are described of hematuria and three of hemorrhagic purpura in the course of relapsing fever, and a number of cases of extremely profuse epistaxis.

Brain and Meningeal Complications of Relapsing Fever.—Cawadias describes the complete meningeal syndrome noted in 3 per cent. of his numerous cases of relapsing fever in the Greek army. There was a mild meningeal reaction in fully 80 per cent.

Cerebromeningeal Syphilis.—The paralysis of the third pair in the young woman was accompanied with left hemiplegia and hemianopsia. Under specific treatment all subsided but the hemianopsia, except that partial hemiplegia persisted.

Physical Findings in One Sound Lung.—Salomon relates that tuberculous cavities in one lung frequently propagate adventitious sounds to the healthy lung. They may be so pronounced that artificial pneumothorax is apparently out of the question, when in reality the lung is sound.

The Epinephrin Test.—Garnier and Bloch obtained a positive response to Goetsch's test in twenty-six of forty-eight subjects, confirming the hypersensitiveness to epinephrin during transient or permanent excessive functioning of the thyroid. As functioning returned to normal, the response to the test veered to negative, but it could be elicited anew by giving thyroid extract.

Quinin Amaurosis.—A man of 41 with old malaria took eighteen 0.5 gm. powders of quinin one day, and complete amaurosis followed. Vision up to two thirds was slowly regained in the following weeks. The central scotoma with normal peripheral visual field differs from the usual picture from the toxic action of quinin on the eye. The papilla was impressively blanched from the first. Other features of the quinin poisoning included hemoglobinuria for two days and a long period of polyuria.

Médecine, Paris

July, 1921, **2**, No. 10

*Nutritional Diseases in 1920. L. Lortat-Jacob.—p. 741.
*The Acidosis of Fasting. M. Labbé.—p. 752.
*Tuberculous Cirrhosis of Liver. G. Roque.—p. 757.
*Dyspepsia or Gallstones? F. Ramond.—p. 763.
*Oxalic Acid Gout. M. Loeper.—p. 768.
*Endocrine Glands and Functional Syphilis. P. Merklen.—p. 774.
Syphilitic Cirrhosis of Liver. F. Saint-Girons.—p. 779.
*Medicinal Gastritis. E. Agasse-Lafont.—p. 785.
Bile Salts in Liver Disease. Chabrol and Bénard.—p. 791.
Hourglass Stomach. A. Cain.—p. 794.
*Clinical Features of Pituitary Polyuria. E. Schulmann.—p. 799.
*Treatment of Strangulated Hemorrhoids. G. Leven.—p. 805.

Dyspepsia and Nutritional Diseases in 1920.—Among the advances realized last year, Lortat-Jacob mentions blocking of the splanchnic nerves to arrest the gastric crisis of tabes, as Pauchet, Carnot and others have done. It is not constantly effectual, but the result has often been excellent and

the method, he says, is harmless and can be applied extemporaneously, at the bedside, by any operator. The needle, 12 cm. long, is introduced at the lower edge of the twelfth rib, four fingerbreadths from the median line, pointed toward the body of the vertebrae, at an angle of 45 degrees to the median axis of the body. After the needle touches the bone, it is withdrawn half its route, and is pushed in again pointed farther forward, so that it passes at a tangent to the vertebra and 1 cm. beyond. The tip is then in the region of the solar plexus, and about 25 c.c. of a 1 per cent. solution of procain, with a little epinephrin, is injected to lave the plexus. The procedure is then repeated on the other side. He says that the technic is not difficult nor distressing for the patient. Toxic phenomena need not be apprehended even notwithstanding the large dose of the anesthetic used. The pain is relieved in a few moments, and the procedure can be repeated the next day or the following days at need. He regards this as a most interesting innovation the benefit from which might usefully be extended to solar crises whatever their nature. Syphilitic radiculitis in the gastro-intestinal sphere causes a more continuous pain than tabes; and syphilis as a causal factor in gastric ulcer has been demonstrated in some cases. Lortat-Jacob describes the present status of the digestion hemoclasis test of liver functioning, which is an index of the proteopexic power of the liver, that is, its ability for fixation of heterogenous albumins brought to the liver by the portal vein. Any insufficiency of the liver in this line is revealed by the drop in the number of leukocytes in the blood after ingestion, fasting, of 200 c.c. of milk. This induces the *choc colloidoclasique*, described by Widal, Richet and others, and duly chronicled in these columns. The test seems to be more sensitive than others. Another recent test of liver insufficiency to which he refers is Chiray's induced glycuronuria, estimating with a colorimeter the proportion of glycuronic acid in the urine after ingestion of 1 gm. of camphor in a gelatin capsule. This has also been duly chronicled recently. He refers further to fever as the only symptom of syphilitic disease of the liver; it is high, irregular and prolonged. Netter has reported a case with fever for eighteen years.

The proteopexic shock test of the liver has confirmed the highly toxic action of chloroform and of arsphenamin for the liver. His verdict on the fasting treatment of diabetes is that it may improve conditions temporarily but is dangerous in certain cases of acidosis and denutrition. Recent research has apparently established that diabetic coma may be the result of both acidosis and of some other toxic action from disturbance in the metabolism of albuminoids. When due to acidosis alone, it can be controlled by alkaline treatment, but otherwise all our treatment is impotent.

Fasting Acidosis.—Labbé states that the importance of the acidosis which develops during fasting has been much exaggerated. Pathologic acidosis tends to subside under fasting; there is nothing to be apprehended from fasting, therefore, in diseases presenting acidosis.

Tuberculous Cirrhosis of the Liver.—Roque declares that the liver is affected almost constantly in tuberculosis; there may be specific lesions or merely fatty or amyloid degeneration. When the liver is suffering from the action of alcohol besides, then the tuberculous cirrhosis becomes extensive and grave, and we behold the Laennec and the Hanot types of cirrhosis. It is alcoholic cirrhosis because it cannot develop except in alcohol drinkers, but it is primarily tuberculous, he emphasizes. The tuberculous nature of the process is sustained by the nature of the ascitic fluid, inoscopy and inoculation of animals with the fluid and with scraps from the cirrhotic liver.

Dyspepsia or Cholelithiasis?—Ramond shows the great similarity between the pains from actual stomach disease and those induced in the stomach region by irritation of the common nerve supply from gallstones. At first there is excessive gastric secretion, as a rule, but then hyposecretion follows. Radioscopy is not decisive; at most the displacement of the painful gallbladder-pylorus point on change from the reclining to the erect position. With gallstones, the pain spreads; a painful point at xiphoid process with a tender point over the gallbladder is instructive, also spreading of the pain to the esophagus, with dysphagia, and to the cecum and appendix. The latter has been responsible for many cases of phantom appendicitis. A painful point in the right sternocleidomastoid fossa is practically constant with cholelithiasis, but in the left fossa it is a sign of stomach or duodenal disease. Auscultation of the lung is also instructive; painful pathologic conditions in the stomach have no action on the respiratory system. With liver disease and gallstones, the vesicular murmur on the right side is diminished while it is found normal on the left side. Morphin relieves the pain with gallstones; atropin the pain of dyspepsia. He is now studying still another sign of cholelithiasis, the pain on pressure of the perforating branches of the intercostal nerves.

Oxalic Acid Gout.—Loeper has published numerous articles on this subject in the last ten years, and his experience has demonstrated more and more the pathologic action of retention of oxalic acid. It affects injuriously the liver, the muscles and the nervous system, but the joints suffer first and foremost. It induces a deforming arthritis with hypertrophy, involving mainly the small joints of the hands and fingers, settling in connective tissue and bone rather than the cartilage and periarticular tissue for which uric acid displays a predilection. Uric acid gout is accompanied by vasomotor congestion and high blood pressure; oxalic acid gout by low pressure and anemia, but in both the excess may be cast off in time by a freshet through the kidneys. Oxalemia may entail neuralgia or myalgia, asthenia and demineralization; its equivalents include asthma, facial neuralgia, eczema and certain prurigos, melancholia, and neurasthenia. The more common disturbances from the oxalemia, however, are gastro-intestinal and urinary on account of the injury during elimination of the calcium oxalate crystals. The bones become porous from loss of calcium. Treatment should include abstention from rhubarb and chocolate, purins and nucleins, giving stimulants for the liver and kidneys, with phosphorus for its antitoxic and remineralizing action, and magnesium preparations as antidotes for the oxalic acid.

Functional Syphilis and the Endocrine Glands.—Merklen ascribes to the intermediation of the ductless glands the asthenia of syphilitic origin which is one of the purest types of functional syphilis. He advises investigating the endocrine system and examining for traces of syphilis, and combining organotherapy with specific treatment, especially in inherited syphilis. Certain viscera or groups of viscera are doing inferior work although no definite lesions can be detected in them, and the functional or meiopragic syphilis is responsible for this.

Medicinal Gastritis.—Even when the symptoms suggest gastric ulcer or cancer, the possibility that they may be traceable to the drugs the subject has been taking should never be forgotten. In one extreme case of self-drugging, the man had taken antineuralgia tablets for ten years, a total of 20,000, at an expense of 7,000 francs and the ruin of his health. Patients are often inclined to increase the prescribed dose and continue the medicine too long, and the druggist may dispense drugs with impurities. The resulting gastritis may be accompanied by hypersecretion at first, but hyposecretion or late is more common. The pain and vomiting from it may be attributed to the primary affection when in reality the medication is responsible, and they subside as it is suspended. Abuse of sodium bicarbonate may induce cachexia. Patients should be warned, Lafont adds, that the widely advertised remedies are active, and, being taken by large numbers of persons, some few of them actually benefit, as the remedy is temporarily adapted to their condition. These few proclaim this transient benefit, and this assures the success of the remedy. But to take it indiscriminately not only exposes to the danger of taking drugs absolutely unadapted for the condition, possibly aggravating it, and losing time when proper treatment might prove effectual, but it exposes also to the danger of excessive drugging, the pernicious effects of which may be irreparable in time.

Pituitary Polyuria.—Schulmann explains that with polyuria from other causes there is retention of certain elements of the urine, but with pituitary polyuria the kidneys are normally permeable. The only abnormality is the flood of water. Some of his patients in this category do not seem to suffer from their diabetes insipidus. One has been under observa-

tion for five years, and the only disturbance is the necessity for drinking from 15 to 20 liters of water a day or else severe disturbance follows.

Strangulated Hemorrhoids.—Leven expatiates on the relief that follows keeping the patient in bed, without food, for one or two days, allowing nothing but a few spoonfuls of sweetened water every hour to a total of 200 or 300 gm. Hot compresses are kept on the protruding hemorrhoids; later they are painted every second day with a weak alcoholic iodin solution.

Paris Médical

July 16, 1921, **11**, No. 29

*Diphtheric Paralysis of Accommodation. Poulard.—p. 57.
*Artificial Pneumothorax. C. Saugman.—p. 59.
*Streptococcus Gastritis. A. Cange and E. Micheleau.—p. 64.

Diphtheria Paralysis of Accommodation.—Poulard states that the sudden loss of near vision from diphtheric paralysis of accommodation subsides in a few weeks without leaving a trace. Syphilis affects one eye alone as a rule, and there are usually other manifestations of the syphilis. In diphtheria the motor neurons of the ciliary muscle are attacked simultaneously by the diphtheric toxin but the accommodation reflex is not abolished. A similar condition has been observed in epidemic encephalitis, although not so pure. Botulism and atropin poisoning are also liable to induce it.

Artificial Pneumothorax in Pulmonary Tuberculosis.—A similar article by Saugman was reviewed in these columns, March 26, 1921, p. 903.

Streptococcus Gastritis.—Postoperative erysipelas developed after an operation on the lacrimal sac of a woman of 50, with consecutive fatal ulcerative and hemorrhagic streptococcus gastritis.

Presse Médicale, Paris

July 13, 1921, **29**, No. 56

Benefit from Vaccine Therapy of Pulmonary Disease. Minet.—p. 553.
*The Blood and the Extravascular Circulation. J. Le Calvé.—p. 554.

Interchanges Between Blood and Extravascular Circulation.—Le Calvé refers to the fluids in the serous cavities, etc., as the extravascular circulation, and shows how it can be modified by hot baths, ligation of the legs, rubbing the chest, cupping, and inhalation of amyl nitrite, with resulting interchanges between the blood and this extravascular circulation. The easiest and simplest means to study this is by tying off the legs and analyzing the fluid obtained by tapping a pleural effusion or ascites. He tabulates the findings in a number of cases under the vasomotor changes thus induced. Chief among them is a loss of water, urea and chlorid from the blood. These are poured out in turn into the interstitial spaces and serous cavities. If the fluid in these cavities is then siphoned out, we thus relieve the system of a comparatively large amount of these elements. Hence measures to stimulate vasomotor function, for example, applying a ligature to each leg, may prove a useful preliminary half an hour before tapping.

July 23, 1921, **29**, No. 59

*Relations Between Alopecia and Syphilis. R. Sabouraud.—p. 581.
*Nature of Epilepsy. P. Pagniez.—p. 582.

Relations Between Alopecia Areata and Syphilis.—Sabouraud mentions that in 1 or 2 per cent. of his cases of alopecia areata it could be traced through two or three generations, but there was nothing to suggest syphilis. Alopecia areata is also so frequent in exophthalmic goiter that it seems to form part of the clinical picture. The disturbances at the menopause are also liable to entail *la pelade*. He has encountered three cases in which the irruption of a wisdom tooth seemed to have started an alopecia areata process on the same side, along with local edema of the neck, etc. In none of these three groups was there anything to suggest syphilis, but the proportion of patients with inherited syphilis among the alopecia areata cases is too large for a casual coincidence. Sabouraud's numerous experiences with the cure of alopecia areata in children under treatment for syphilis corroborate the relations between them.

Nature of Epilepsy.—Pagniez compares the recent literature on this subject with his own observation, all sustaining the assumption that the immediate cause of the manifestations of epilepsy is some vasomotor disturbance in the circulation, but that the seizures can be influenced by measures in the line of protein therapy. The latter, in addition to the fact that intercurrent febrile disease suspends the seizures as a rule while it lasts, suggests that there is some humoral element involved which can be modified by diet and by some form of protein therapy. Instead of being a nervous disease, epilepsy seems to belong more to the category including gout.

July 27, 1921, **29**, No. 60

*Operative Indications and Contraindications with Gastric Ulcer. P. Le Noir, C. Richet, Jr., and A. Jacquelin.—p. 593.
The Colloids in Therapeutics. W. Kopaczewski.—p. 594.

Indications and Contraindications for Operative Treatment of Gastric Ulcer.—The conclusions of this comparative study are that an operation should be considered when the pains, hemorrhage and stenosis persist after a regular course of repose and medical measures. Everything else being equal, the indications for operative treatment are more decided when the ulcer is on the lesser curvature than when at the pylorus. The prognosis is grave when there is insufficiency of kidneys, even slight, or insufficiency of the liver. In short, insufficiency of the kidneys is a relative or absolute contraindication to operative measures. Chloroform should be avoided in such a case and the intervention should be limited to what is strictly necessary. After any intervention on the stomach, the patient should be kept long under medical supervision.

July 30, 1921, **29**, No. 61

*Deep Roentgen-Ray Therapy. H. Vaquez, Bordet and Schrumpf-Pierron.—p. 601.
*Statistic Nosology. M. Jullien.—p. 602.
*Test of Kidney Functioning. H. Kummer.—p. 603.
Sodium Cacodylate in Treatment of Contracture. L. Cheinisse—p. 605.

Deep Roentgen-Ray Therapy.—The present status and the principles underlying deep roentgenotherapy are reviewed and the importance of a medical training for the radiologist is emphasized. "It is an anachronism to allow the nonmedical person to apply such a powerful therapeutic agent as the roentgen rays when it is against the law for him to prescribe even 1 mg. of morphin."

Statistic Nosology.—This is a reply to Rist's article summarized pp. 72 and 409.

Induced Chloriduria Test for the Kidneys.—Kummer has been using this test for two years with constantly increasing satisfaction. The subject is kept on a salt-free diet until it is impossible to reduce the chlorids in the urine any further. He is then given 10 gm. and then 20 gm. of sodium chlorid for several days in succession. Then all salt is dropped again until the output is at the same height as before the test. This excess of salt is generally borne without harm, but strict supervision is necessary and the salt should be dropped if there is any disquieting retention. In the normal, in three or four days as much salt is eliminated as is being ingested. If the outgo does not equal the intake after the fourth day, this is regarded as a sign of slight impermeability of the kidneys. The rhythm of the elimination plus calculation of the amount retained, and comparison with the elimination of the urea during the same period, throw instructive light on the functional capacity of the kidney beyond anything attainable in any other way, he says. In repetitions of this test chloriduria in ten healthy subjects, the proportion of urea eliminated grew smaller as the proportion of salt eliminated increased, or vice versa, this antagonism being a physiologic phenomenon, the more pronounced the higher the total concentration of the urine. When the curves of elimination kept parallel or varied independently, the kidneys were always found seriously pathologic. The elimination of both was calculated for the period of the surcharge only, or daily average. Even the normal kidneys may take three or four days to eliminate the test dose of salt. When an average of over 4 gm. of sodium chlorid is retained daily, the prognosis is grave. In 15 cases of prostatic enlargement the rhythm was of the normal type and all bore the operation well, while 7 died of the 8 presenting the pathologic type of response. Among the 15 with normal response there were some in such an apparently serious condition that operative intervention would not have been considered if it had not been for the encouraging response to this induced chloriduria test. The phenolsulphonephthalein test and the Ambard ureosecretory

index seemed to indicate severe renal insufficiency. None died of those with retention of 3 gm. of salt or less, and all died of those with retention of over 4 gm. A typical case is described in which there was average daily retention of 5.4 gm. but the general condition seemed good, and all the other functional tests gave satisfactory findings, so that Kummer gave his consent to the prostatectomy, but necropsy revealed advanced interstitial nephritis. The course of the elimination of salt and urea had failed to show the physiologic antagonism.

Schweizerische medizinische Wochenschrift, Basel

July 14, 1921, **51**, No. 28

Wounds from Flobert Pistols. J. Dubs.—p. 645.
Magnesium Sulphate by Rectum in Tetanus. A. Hotz.—**p. 651.**
*Aplasia of Suprarenal. K. Schnyder.—p. 652.
Case of Ileus from Ascarids. A. Steinegger.—p. 654.
*Urine Test for Tuberculosis. J. v. Bergen.—p. 655.
*Diphtheroid Bacilli. H. U. Hartmann.—p. 657.

Addison's Disease with Aplasia of Suprarenal.—Schnyder has found six cases on record in which the right suprarenal capsule was missing, and in two of the cases Addison's disease developed as the other suprarenal developed tuberculosis. He has recently encountered a third case of aplasia of the right suprarenal. The patient was a man of 68, with cancer of the larynx. The skin showed extensive bronzing and there were brown spots in the buccal mucosa, but the blood pressure was not especially low. Twenty-four years before he had been treated for scurvy, and the journal record added "plus Addison's disease." Necropsy showed apparently congenital absence of the right suprarenal, but the single one found seemed to be normal. The diagnosis of Addison's disease, Schnyder thinks, is thus disproved.

The Own Urine Test for Tuberculosis—Von Bergen mentions that the specific gravity of the urine should always be determined first, as the specimen will have to be evaporated to 1:8 or up to 1:20 according as the specific gravity is high or low. He describes the arrangements for distillation in a vacuum, and states that the experiences with his tests of 400 specimens of urine have demonstrated that the substance inducing the reaction is a thermostable, dialyzable, biuret-free substance, soluble in alcohol and resembling tuberculin. It is not a protein in the ordinary sense.

Pseudodiphtheroid Bacilli.—Hartmann queries whether Mycobacterium smegmatis is a separate species or only a pseudodiphtheroid coryne bacterium. He inclines to the belief that there are two forms of smegma bacilli, one that can be cultivated and one that cannot.

Annali d'Igiene, Rome

April, 1921, **31**, No. 4

Toxicity of Antirabies Vaccines. V. Puntoni.—p. 201.
*The Water in Colloids, etc. A. Scala.—p. 214.
The Bacteriophagum. V. Puntoni.—p. 250.

The Water in Living Beings and in Colloids.—This is a critical review by Scala of what is known to date in regard to the rôle of the water in the organism and in colloids in general.

Clinica Pediatrica, Modena

1921, **3**, No. 4

*Osteopsathyrosis and the Endocrine Glands. E. Giorgi.—p. 117.
Hospital Epidemic of Measles. G. Zadra.—p. 137.

Osteopsathyrosis.—The remarkable fragility of the bones in the 10 months infant was associated with chronic diffuse interstitial inflammation of the hypophysis and hypoplasia of the testicles. The hemorrhage in the suprarenals was evidently a late acute process. The child seemed healthy until the first fracture appeared. This was followed by profound and continuous autointoxication from the cytolysis. The mother had both tuberculosis and syphilis.

Pediatria, Naples

July 1, 1921, **29**, No. 13

*Albumin Content of Blood Serum. E. Mensi.—p. 577.
*Protein Therapy. G. Milio.—p. 614.

The Albumin Content of the Blood Serum in Children.—Mensi gives over fifteen pages of tables showing the refractometer findings in the serum from 382 children. In the normal, the proportion was about 6 per cent. under 6 months of age, and after this about 7 or 8.5 per cent., that is, the average figure in older children and adults. It was below normal with retention of water and salt from kidney disease, also in acute infectious diseases and cachexia, but it was above normal in diabetes, in uremia, jaundice, spasmophilia, syphilis, rachitis, and above all in tuberculosis. In the latter the albumin content was above normal at all ages, often reaching 8 or 10 per cent. and in one case 12.25. He regards this as an important aid in the differential diagnosis in dubious cases, corroborating the response to tuberculin tests. The refractometer index was determined more than once in some of the children, the total number of tests being 477, plus the frequent parallel skin and intradermal tuberculosis tests. He followed Nast's technic, and theorizes to explain the characteristic findings in the various pathologic conditions.

Protein Therapy.—Milio concludes his review of the present status of protein therapy with the statement that it is being used more and more and with encouraging results in constitutional diseases and diatheses. But in infectious diseases, vaccine therapy seems preferable.

Policlinico, Rome

July 18, 1921, **28**, No. 29

The Malarial Complexion. G. Jona.—p. 971.
Stab Wound of Pulmonary Artery. A. Miliani.—p. 976.
*Differentiation of Smallpox and Chickenpox. E. Romanelli.—p. 978.

Differential Diagnosis of Variola.—With smallpox there is usually a period of fever for several days before the eruption, while with chickenpox this prodromal period is less intense and lasts at most only a few hours to a day. The eruption with smallpox develops all at once; with chickenpox there may be pustules of different ages, and the pustule matures much more rapidly than in smallpox. Umbilication is not absolutely pathognomonic of smallpox. The localization is more instructive. In 3,500 cases of smallpox in the last three years, in over a third the eruption predominated on the face and limbs, sparing the trunk; in less than a third it was diffuse, but the trunk was mostly free. In all the varicella cases the trunk was the region mainly or exclusively affected. The variola was hemorrhagic in 300 cases. Variola may be confused with impetigo, measles, scarlet fever and syphilitic skin lesions, besides varicella. The danger is naturally greatest with unusually mild variola and grave and anomalous varicella.

July 25, 1921, **28**, No. 30

*Hemolysins in the Urine. L. Condorelli.—p. 1003.
*Polyserositis. B. Maggesi.—p. 1008.
The Hearing of the New-Born. O. Waltan.—**p. 1010.**
Paraffin Tumor in Testicle. L. Caforio.—p. 1012.

Hemolysins in the Urine.—Condorelli presents here a second report on his research on hemolysins and antihemolysins in the urine. He found two of the latter and one of the former in every specimen of normal urine, so that normally the antihemolytic action predominates. He describes his technic and the way he estimates the antihemolytic index in health and disease. It may be normal in mild nephritis, but is always reduced and hemolysins may predominate in grave uremia and anemia.

Polyserositis.—In the case described, slight paresis of the right side had been left by epidemic encephalitis in the man of 50 but he seemed otherwise well, when intense abdominal pain suddenly developed accompanied in a few days by insistent vomiting. This kept up for a week, but the general health did not seem to suffer as with ileus, which otherwise seemed unmistakable. Under simple pituitary treatment, bowel functioning was restored, but slight fever persisted, with dyspnea and slight cyanosis, and a bilateral effusion in the pleura soon became evident. This was speedily and harmlessly absorbed. The acute onset suggesting ileus and calling for a laparotomy, and the harmless subsidence of the triple serositis were striking features of the case.

Aug. 1, 1921, **28**, No. 31

Hygiene Propaganda and the School. A. Sclavo.—**p. 1035.**
*Calculus in Ureter. A. Catterina.—p. 1040.
Arsphenamin Injected in Varicose Vein. S. Pulvirenti.—p. 1043.
Priority in Urine Mercuric Nitrate Test. E. Pittarelli.—p. 1045.

Calculus in Pelvic Ureter.—The calculus had been causing disturbances for twelve years, but the pains had been

attributed to hemorrhoids. Divulsion of the anus had been done three times before radioscopy revealed the calculus, which was then removed by cutting down to it, suturing the incision in the ureter. Ten other Italian cases of ureter calculi are compared with this.

July 1, 1921, **28**, Medical Section No. 7

*Pleural Effusion with Artificial Pneumothorax. F. Dumarest and F. Parodi.—p. 281.
*Laryngospasm and Tetany in Adults. G. Frontali.—p. 301.
*The Mechanics of the Skull and the Physics of the Brain. F. Pedrazzini.—p. 310. Conc'n.

The Pleural Effusion with Artificial Pneumothorax.—Dumarest and Parodi discuss the pleuritis which may develop in the course of an induced pneumothorax. The tuberculous toxins from the compressed focus spread to the pleura which reacts with an effusion. Small lymphocytoid acidophile cells are found in the effusion when the reaction is mild. Macrophages are a sign of bacillary lesion of the pleura, and are never found in the mild reaction pleuritis. A colored plate reproduces the blood cells characteristic of the idiopathic, the tuberculous and the septic type of effusions found with artificial pneumothorax. Large eosinophils are found in the idiopathic form, and small ones in the mild tuberculous form.

Laryngospasm and Tetany in Adults.—Frontali witnessed attacks of tetany in the young woman, the recurrences always in the winter or spring, some without apparent cause, others after excitement, and two followed coryza and were characterized by laryngospasm. Once the latter was so severe that intubation was required, the spasm lasting for several hours and then suddenly disappearing. There was retention of calcium to 37.73 per cent. of the amount introduced in an average of three days. A few days afterward, tests with pilocarpin and atropin induced a pronounced reaction, while epinephrin elicited scarcely any response. The vagus was extremely excitable, with notable vagotony.

The Mechanics of the Skull.—This long critical and experimental study analyzes the physics of the brain as modified by the mechanical conditions of the skull. Pedrazzini illustrates with concrete examples the various points he seeks to emphasize.

Riforma Medica, Naples

July 2, 1921, **37**, No. 27

*Syncopal Pernicious Malaria. R. Leone.—p. 626.
Ectopic Testicle with Hernia. E. Busca Lay.—p. 629.
Genital Tuberculosis in the Female. E. Aievoli.—p. 631.
Classification of Mild Persisting Fevers. I. Jacono.—p. 632.
Dante from Anthropologic Standpoint. B. De Vecchis.—p. 643.

Syncopal Pernicious Malaria.—Death occurred from paralysis of the heart in the two young men presenting the syncopal form of pernicious malaria, but the heart seemed to be normal at necropsy. Thrombosis of the capillaries had evidently shut off the nourishment from the intracardiac nerve system, and thus had entailed the syncope.

July 9, 1921, **29**, No. 28

*Inflammation Around the Bladder. D. Taddei.—p. 649.
*Acidosis in Kidney Disease and Uremia. G. Poggio.—p. 652.
Joint Complications of Influenza in Children. G. Roello.—p. 654.
Constitutional Hypotony of Blood Vessels. A. Ferrannini.—p. 656.

Pericystitis and Periprostatitis.—Taddei applied local heat in treatment of the case described, striving to induce resolution of the inflammatory process around the bladder and prostate of manifestly blood-borne origin. The onset had been acute and stormy, with high fever and pains, predominantly in the hypogastrium, in the man of 25. The hypogastrium bulged slightly and the skin was adherent to the tissues below along the median line and the umbilicus. Palpation revealed a hard resistance which seemed to form part of the rectus muscle, a triangular mass with the apex at the umbilicus and the base at the pubis. This mass could be moved a trifle sideways but not up and down, and it could be palpated through the rectum. The temperature gradually declined after three or four days and there was no further fever after fifty days. Puncture was negative, the bladder normal.

Acidemia and Acidosis.—Poggio discusses the practical application of what we have learned in regard to the power of the blood to maintain its alkaline reaction.

Rivista di Clinica Pediatrica, Florence

February, 1921, **19**, No. 2

*Chronic Recurring Fever with Lymphogranulomatosis. A. Lorenzini.—p. 65.
Criticism of Endocrinology. G. Frontali.—p. 101.

Periodic Pyrexia with Lymphogranulomatosis.—Lorenzini gives the details of a case of the Cardarelli-Pel-Ebstein type of undulant fever in a girl of 10 with hemolytic jaundice and enlarged spleen, the enlargement of other glands finally confirming the diagnosis of lymphogranulomatosis. The coincidence of the recurring pyrexia with the waves of glandular enlargement demonstrate the close connection between the fever and the granulomatous process. The differential diagnosis may be difficult if the granulomatosis is restricted to deep and inaccessible glands. In his case the disease ran a nearly three years course. The first manifestations had been limping from recurring pains in the left knee, accompanied by high fever for two or three days, the whole returning at intervals of from two to four weeks or more. Gradually the attacks grew longer and the intervals not more than eight or ten days, but there was no chill nor sweating, merely the pain in joints and lumbar region. The only glands enlarged at first were a few of the supraclavicular glands and some in the axilla and groin. The few cases on record are compared with this, from Cardarelli's report in 1888 to Abrahams' in 1919. None of the measures applied seemed to display any efficacy in Lorenzini's case, but there was no opportunity to try radiotherapy.

April, 1921, **19**, No. 4

*Culture Medium for Diphtheria Bacillus. F. Pellini.—p. 193.
*Rachitic Deformity of the Thorax. P. Brusa.—p. 210.
Tardy Scurvy in Infant. A. Cantilena.—p. 228.

Culture Mediums for Diphtheria Bacilli.—Pellini's colored plate shows the characteristic cultures of the diphtheria bacilli in various new mediums, and especially the unmistakable growth with Pergola's egg-serum medium. The bacilli develop in this much more rapidly than on the Löffler medium, while the growth of other bacilli is checked so that the diphtheria bacilli are in nearly pure cultures, and with a peculiarly characteristic growth. The medium is easily prepared and keeps well. For the technic he refers to Pergola's description in the *Annali d'Igiene*, 1918, No. 3.

Rachitic Deformity of the Thorax.—Brusa has been making a special study of the way in which the respiratory organs are hampered in their functioning by deformity of the chest wall induced by rachitis. He compares the clinical course and respiratory anomalies with the necropsy findings in one infant of 15 months and in a child of 5. In three other children an inflammatory process recurred from time to time in the portion of the lung most hampered by the deformity. The inflammatory process in such cases displays a marked tendency to sclerosis. It usually starts near the spine, as the lung is most impeded in its functions here and most inclined to stasis, particularly in infants.

Archivos de Cardiología y Hematología, Madrid

June, 1921, **2**, No. 6

*Congenital Bradycardia. Louis Calandre.—p. 225.
*Recurring Malaria After Splenectomy. R. Jiménez and G. Pittaluga.—p. 233.

Congenital Bradycardia.—Calandre's patient was a young man of normal aspect whose pulse had never been known to be over 40. The mother also had persisting bradycardia, but had not seemed to suffer from it. She died at 25 from pulmonary tuberculosis. Calandre is inclined to accept the case of the young man as one of intermittent heart block due not to interference with the transmission of the impulse but rather to anomalous production of the impulse.

Malaria Recurs After Splenectomy.—The woman of 31 had been apparently long cured of the tertian malaria but it flared up anew after removal of the enlarged spleen.

Brazil-Medico, Rio de Janeiro

July 2, 1921, **1**, No. 27

*The Muscular Reflexes. M. Ozorio de Almeida.—p. 343.
*Prophylaxis of Tuberculosis. A. Fontes.—p. 344.

Muscular Reflexes.—Ozorio has been studying the muscular reflexes in frogs. They could be elicited by direct electric stimulation, but he never succeeded in inducing muscular reflex action with a chemical stimulus. Mechanical stimuli proved most effectual, and there was usually some coordination in the response.

Prophylaxis of Tuberculosis.—Fontes reproduces some Italian official decrees, that date from 1699, respecting the management of cases of tuberculosis. Large fines were imposed for concealing cases and for selling garments worn by the tuberculous. He concludes his historical review and the plan for a general campaign with comparative statistics. They confirm the gradual decline in the death rate from tuberculosis. In Rio de Janeiro it has shown a steady drop from 10.78 per thousand inhabitants in 1860 to 3.88 in 1905. Since then it has risen a little; having been 4.12 during the five years ending with 1919. In S. Paulo it has dropped from 2.09 to 1.21 per thousand. He ascribes this decline to acquired immunity from infection early in life.

Gaceta Médica de Mexico

August-December, 1921, Fourth Series 1, No. 7, Mexico City. First Half

Radiography in Diagnosis. U. Valdés.—p. 395.
*Agglutination Test in Typhoid. E. Cervera.—p. 408.
Diagnostic Import of Headache. A. A. Loaeza.—p. 414.
*Trachoma in the Tropics. J. Santos Fernández.—p. 419.
*Carbon Dioxid Snow in Lupus. J. González Urueña.—p. 424.
*Physiologic Glycemia. J. J. Izquierdo.—p. 438.
Incessant Crying of Infants as Sign of Inherited Syphilis. S. Ramirez. —p. 474. Idem. F. Ocaranza.—p. 504.

Agglutination in Typhoid.—Cervera emphasizes the necessity for selecting an agglutinable strain.

Commalignancy of Trachoma in the Tropics.—Santos Fernández says that the out-of-door life the year around, and the fact that wage-earners are not crowded so closely together in their work, tend to render trachoma less serious in tropical regions than elsewhere, although the disease in itself is the same. When water is scant and hygiene neglected, trachoma is as virulent in the tropics as in other zones. It would disappear everywhere, he says, if hygiene and an ample water supply were enforced among the working classes.

Carbon Dioxid Snow in Treatment of Lupus.—González Urueña reports very favorable results to date, up to eight months, in six cases of erythematous lupus treated with carbon dioxid snow.

Physiologic Glycemia.—Izquierdo tabulates the findings in regard to the sugar content of the blood in thirty men and thirty women in Mexico City. The altitude is 2,268 meters and the average barometric pressure 568 mm. of mercury. He found the glycemia range to be from 0.08 to 0.15 per cent., the average 0.12. He theorizes to explain the variations in the sugar content of the blood and the adaption of the organism to altitude.

Revista Española de Medicina y Cirugía, Barcelona

May, 1921, **4**, No. 35

*Nasopharyngeal Fibromas. R. Botey.—p. 267.
*Sympathetic Anesthesia for Surgery of Stomach. V. Carulla Riera.—p. 272.

Technic for Removal of Nasopharyngeal Fibromas.—Botey explains that ordinary forceps do not grasp the fibroma firmly enough to allow complete torsion, and has devised a forceps for the purpose. The blades are broad, and the outer ends twist independently of the blades proper. The fibroma can thus be drawn out through the mouth, the patient in the Rose position. When access by this route is impossible, he prefers what he calls the transmaxillonasal mode of access.

Regional Anesthesia for Operations on the Stomach.—Carulla has become firmly convinced of the advantages of splanchnic anesthesia as he has applied it in thirty cases. The operations included some of an hour or more up to an hour and forty minutes. He followed Naegeli's technic, introducing the needle along the anterior margin of the first lumbar vertebra. There were no mishaps of any kind, but he warns that the abdominal wall has to be anesthetized separately, the anesthesia of the sympathetic not extending to include the muscular wall.

Semana Médica, Buenos Aires

June 2, 1921, **28**, No. 22

*Chlorids in Pathogenesis of Eclampsia. R. Mestre.—p. 629.
Febrile States. J. P. Garrahan.—p. 636.
Addiction to Opium. J. A. Dominguez.—p. 646.
Chenopodium in Treatment of Hookworm. T. Padilla.—p. 653.

Rôle of Chlorids in Pathogenesis of Eclampsia.—Mestre cites data which seem to demonstrate that the nervous system is a point of lesser resistance during a pregnancy, and that retention of chlorids is frequent, and that the chlorids retained are liable to induce symptoms like those caused by retention of urea. Widal and Lemierre induced convulsions in a nephritic given considerable salt, and cured them by forbidding all salt. The diastolic blood pressure has always been found high in eclampsia, testifying to obstruction of the kidney filter. This hypertension is responsible for the headache, hemorrhages, etc., in eclampsia. Recent research has demonstrated that retention of chlorids as well as of urea is liable to send up the blood pressure, but when this is due to retention of chlorids, dropping salt from the diet sends the pressure down again. For these and other reasons, Mestre argues, that retention of chlorids is the basis on which eclampsia develops. Kidney functioning is hampered by the enlarging uterus, and it mechanically impedes the circulation in the viscera. Another circumstance which exaggerates these factors is the erect position. One reason, he explains, why gravid animals do not have eclampsia is because their kidneys and other viscera lie in a horizontal plane. Treatment of eclampsia should aim to eliminate the chlorids and toxins generally, and improve mechanical conditions in the abdomen to promote the circulation and the functioning of the kidneys, and the intake of chlorids should be reduced.

Grèce Médicale, Athens

April, 1921, **23**, No. 4

*Siraud Technic for Femoral Herniotomy. T. Asteriadès.—p. 37.
*Symptoms of Sympatheticotonia. Papastratigakis.—p. 41.
Cerebellar Complications of Malaria. Idem.—p. 41.

Radical Cure of Femoral Hernia.—Siraud sutures the pectineus muscle to Poupart's ligament, taking long U stitches of stout catgut. The stitches embrace nearly the whole of the muscle, and draw it up behind the ligament while the reverse stitches draw the ligament down over the muscle. Aponeurosis is sutured over this, and the femoral ring is thus solidly closed without cutting or tearing any tissues.

Sympatheticotonia.—Papastratigakis protests against some recent publications which have stated that pilocarpin exerts a tonic action on the pneumogastric, and the sweating crises do not form part of the actual sympatheticotonic set of symptoms. He explains that the bradycardia after injection of pilocarpin is not due to a tonic action on the pneumogastric but merely to an upset of the balance between the sympathetic and the pneumogastric, leaving the latter predominantly in control.

Deutsche Zeitschrift für Chirurgie, Leipzig

June, 1921, **164**, No. 1-3

*Osteomalacia and Fibrous Osteitis. H. Naumann.—p. 1.
*Spontaneous Hemorrhage in Bed of Kidney. A. Sohn.—p. 48.
*Consequences of Ligation of Artery. Wieting.—p. 93.
*Syphilitic Disease of the Stomach. R. Sparman.—p. 136.
*Glandular Tuberculosis. W. Drügg.—p. 165.
*Injury of Liver from Anesthetization. Balkhausen.—p. 190.
*Operation on Nose Without Incising Skin. J. F. S. Esser.—p. 211.
Spastic Ileus. A. Sohn.—p. 218.

Osteomalacia and Fibrous Osteitis.—Three cases are described with minute detail and the views of different clinicians compared as to the origin of nonpuerperal osteomalacia. In one typical case there seemed to be a combination of deforming fibrous osteitis with the osteomalacia, all the bones showing this pathologic transformation. The primary factor may have been early rachitis, nutritional disturbances or psychopathic taint, but mechanical and traumatic factors evidently cooperated.

Spontaneous Hemorrhage in Bed of Kidney.—Sohn reviews the history of circumrenal hematomas from Raye's case in 1839 to date. Tuberculosis and cancer have been responsible for the hemorrhage in some cases; in others the bursting of an aneurysm or hemophilic bleeding into a muscle, but in others no cause for the hemorrhage could be discovered, the

bleeding occurring inside and rupturing the capsule. He reports a case of this kind in a woman of 64. Läwen's two cases were in men of 18 and 49. Arteriosclerosis was evidently the cause of the rupture of the vessel; the woman died soon after from cerebral hemorrhage. The operation in all these cases had been on a mistaken diagnosis. Sudden intense pain in the kidney region is the first symptom, then signs of severe internal hemorrhage, and bulging in the retroperitoneal region. In the personal case described the intense pain was the only symptom. It was as sudden, he says, as a stroke of lightning, but in some of the cases published by others there had been preceding slight attacks of pain a few hours or months beforehand. Sometimes the pain spreads to the hip, back or inguinal region, and in two cases the pain occurred in the shoulder. The pain may even begin in the umbilicus or inguinal region or in the hip joint, or left lower abdomen. The sudden onset is more instructive than the site of the pain. Reflex vomiting is common, and in two cases paralysis of the bowel induced fecaloid vomiting. The operation generally has been done on the diagnosis of ileus. In one case on record blood was passed in the stool, but the urine in nearly all the cases seemed normal, free from blood. Treatment can be only surgical, and should be as early as possible. One case is described in a woman of 54 in which the perirenal hematoma had been spontaneously absorbed several weeks before the woman's death from other causes. Necropsy showed that the thickened fibrous capsule had acted like an effectual tampon. The intercapsular hemorrhage had been very small in this case, probably not over 100 c.c. and, in addition to arteriosclerosis and contracted kidney, there was a tendency to hydronephrosis. Twenty-three articles on the subject are compared.

Consequences of Ligation of an Artery.—Wieting refers to the common carotid in particular, and emphasizes that the consequences of ligation must be considered both at the point of the ligation and in the terminals of the artery. The details of ten cases in wounded soldiers are given. In three other cases he ligated the carotid loosely in an attempt to relieve epilepsy, but without effect, and also without harm. A simple ligature is better than complicated procedures if the vessel cannot be sutured. It is not the ligation so much as infection that renders the results grave. Experience shows that it is better to ligate a few cubic centimeters from the bifurcation. The danger from ligation of the carotid is magnified if there is anemia, or if the blood is of poor quality or infected, or the patient advanced in years, or the heart too weak to pump the blood effectually. A tendency to spastic contraction of the blood vessels is another factor that militates against success. In the eight cases described there were no symptoms from the brain in four, and transient symptoms in one. The conditions in the other cases were too grave for recuperation.

Syphilitic Disease of the Stomach.—Sparman remarks on the comparative frequency of cases in which supposed malignant disease of the digestive tract is said to have retrogressed under iodid or arsenic treatment, thus correcting the diagnosis to syphilis. The syphilitic disease has no characteristic features unless possibly nocturnal exacerbations, but syphilitic ulceration is frequently multiple. Fränkel has reported a case with 13 ulcers in the stomach and Bittner one with 7 in the anterior wall, while 31, 34 and 54 ulcers, developing from gummas, have been found in the small intestine. These syphilitic ulcers are usually large, and gastric secretion is generally more or less reduced. The specific treatment usually has to be supplemented by operative measures. In a case described in a woman of 31, there had been symptoms of a gastric ulcer for nine months, rebellious to the usual ulcer treatment. After blocking the splanchnic nerves, the stomach was resected by the Billroth II method, but the patient died the third day. Necropsy revealed numerous small ulcers in the entire duodenum.

Glandular Tuberculosis.—In Drügg's seventy-five cases of glandular tuberculosis, glands in the axilla were affected only twice and in the inguinal region and elbow only once. Before the war, surgical tuberculosis formed only 4.3 per cent. of the total, but during and since the war the proportion has increased to 12.4 per cent. which he theorizes to explain. He reiterates that glandular tuberculosis requires general treatment for the whole body the same as tuberculosis in any organ. It is even more necessary, he adds, as we have to stimulate the body to insure the resorption of the pathologic tissues.

Injury of the Liver During General Anesthesia.—Balkhausen calls attention to the resemblance between the symptoms sometimes observed after chloroform or ether anesthesia and the symptoms with acute yellow atrophy of the liver and of phosphorus poisoning. There is usually an interval of twenty-four hours before the symptoms develop. When the injury of the liver is reparable, the jaundice, somnolency, diarrhea, etc., may subside in time. The very slightest form of the injury is manifested merely by bile pigments in the urine. Conditions of debility, infection, repeated anesthesias and the congenital weakness of the liver in women are contributing factors.

Plastic Operations on the Nose Without Incising the Skin.—Esser's fifty-two photographs show the correction of disfigurement and deformity of the nose by a plastic operation through the roof of the fornix in front of the gum, turning back the nose along with the upper lip and part of the mobilized cheeks. A dentist's cast is then made embracing the cavities in cheeks and nose, working through the mouth. This cast is then covered with Thiersch flaps from the thigh and it is then pushed into the cavities and sutures taken to hold it. The flaps heal in place in about a week and the cast is removed, leaving the raw surfaces covered with skin. The cavities are then packed with gauze until the Thiersch skin is less sensitive. Then a definitive prosthesis can be used or a bone framework provided for the nose. This method is proving particularly successful for a sunken-in saddle nose, but syphilis, lupus and war wound cases are also amenable to it.

Mitt. a. d. Grenzgeb. d. Med. u. Chir., Jena

1921, **33**, No. 4

*Tuberculosis of the Thyroid. K. Nather.—p. 375.
*Surgical Tuberculosis. L. Schönbauer.—p. 405.
*Surgical Complications of Influenza. Wildegans.—p. 429.
*Hemorrhagic Purulent Colitis. P. J. de B. P. van Amstal.—p. 448.
*Water Test of Gastric Ulcer and Cancer. Gundermann and G. Düttmann.—p. 480.
*Cytology of Duodenal Tube Findings. I. Rothman-Manheim.—p. 497.
*Exophthalmic Goiter. E. O. Schmidt.—p. 512.

Tuberculosis of the Thyroid.—Nather's review of what has been published on this subject and his own research and five clinical cases compel the acceptance of three forms of tuberculous bacillemia, the typhobacillosis type, acute miliary tuberculosis, and tubercle bacillus septicemia. The blood-borne form of tuberculous disease of the thyroid either forms part of acute miliary tuberculosis, or is a sign that there has been tuberculous septicemia at some time. The septicemia may have run its course without symptoms, and the infection may have been so mild that the changes in the tissues healed spontaneously. If the interval before removal of the goiters in his five cases had been a little longer, there might not have been a trace of any lesions when the thyroid was examined under the microscope. Guinea-pigs injected in the peritoneum with colloid or extracts from the goiter, mixed with a scrap of tissue, developed fatal tuberculosis the same as the controls without the addition of the goiter colloid or juice. This testified to the lack of any protecting influence from the thyroid.

Conservative Treatment of Surgical Tuberculosis.—Schönbauer has been applying the mercury quartz lamp in 1,000 cases of bone, joint and glandular tuberculosis at Vienna. In 42.1 per cent. of the cases of superficial processes and in 52.8 per cent. of the glandular processes, a cure was realized. The advantage of this form of radiotherapy, he states, is that it is harmless and can be applied by any practitioner. Tuberculous processes in joints were cured or much improved, with satisfactory function. Tuberculous processes in the hands, feet and ribs were amenable to this artificial heliotherapy, and it materially hastened the cure. Hip joint and vertebral processes and those in the feet cannot be given out-treatment, as they require institutional care and proper dietetic and climatic treatment. He adds that the Swedish Red Cross has organized a sanatorium in Switzerland for children with surgical tuberculosis, but the children cured therein are exposed to new dangers of infection when they return home

where other members of the family may be scattering infection.

Surgical Complications of Influenza.—Wildegans relates that pleural empyema developed in 101 cases of the influenza cases in Eiselsberg's service, but the findings a year or two later in the forty-one cases reexamined are surprisingly good. The earning capacity is unimpaired in all but two.

Hemorrhagic Ulcerative Colitis.—Van Amstal says that the blood, mucus, pus and scraps of tissue in the stools easily differentiate purulent hemorrhagic colitis. It is liable to be mistaken for chronic dysentery. In Mummery's and Pitt's cases the colitis was the work of the pneumococcus. The reports of treatment of the colitis by various measures are compared. They demonstrate that surgical treatment is rarely needed, a cure being generally realized under persevering treatment by repose, dieting and charcoal or its equivalent. High injections through the rectum generally allow local medication without the necessity for an artificial opening above. Rectoscopy is indispensable to exclude cancer of the sigmoid and below, notwithstanding that some warn against it as liable to induce perforation from the "stretching" by the instrument. He cited five fatalities from this cause in different clinics. There was no history of dysentery in van Amstal's cases. The colitis seems to be an independent infectious disease sui generis. He applied an autovaccine with good results in several cases, and a polyvalent vaccine in one.

Elimination of Water as Test for Ulcer and Cancer.—Gundermann has found that the elimination of water and of salt proceeds so differently with gastric ulcer, cancer and gallstones that it aids in differentiating these conditions. With gastric ulcer, ingestion of 1,500 gm. of water, fasting and no further fluids during the day, is followed by ample output of salt, while only a small proportion of the water is voided. With cancer, only a small proportion of the salt is eliminated; water is voided freely for a short time and then there is retention. Chronic gallbladder disease does not seem to influence the test elimination of water and salt. With empyema of the gallbladder, water is eliminated freely but not the salt. Elimination of both water and salt is reduced with jaundice and obstruction of the bile ducts. His conclusions are based on seven gastric ulcer and four gastric cancer cases, all in good salt balance to start with, and he reviews a further group of duodenal and other ulcers on which his conclusions are not decisive as yet.

Cytology of Duodenal Tube Findings.—In Rothman-Manheim's tests the bile contained very few cells in the healthy, even after provocative injection of 30 c.c. of a 5 per cent. solution of peptone into the duodenum. With the clinical diagnosis of cholecystitis or cholangitis, the bile contained numerous leukocytes. The bile from the gallbladder can be separated from other bile by the peptone test. This reveals also obstruction in the common bile duct. With catarrhal conditions, epithelial cells are numerous.

Exophthalmic Goiter.—Schmidt rejects the seven current theories in vogue as to the etiology of exophthalmic goiter, and declares that the evidence to date seems to indicate that the thyroid secretion becomes changed in some way which increases its power of dispersion. Owing to this extreme dispersion, the follicles are damaged, and regenerative proliferation of epithelium follows. The microscope and chemical tests for colloids confirm the essential difference between exophthalmic goiter and simple hyperthyroidism. Operative reduction of the thyroid reduces the secretion to correspond, and the hampered circulation may modify the dispersion property. The operation, however, is liable to flood the blood temporarily with this substance from the thyroid, but under the modifications induced by the operation it may become more of a gel. In hyperthyroidism, the thyroid secretion is an unfinished product, but it exerts a toxic action. In exophthalmic goiter, on the other hand, the secretion is an overdeveloped, overripe substance. The findings with the colloid chemical tests are tabulated from a large number of cases, especially the different characteristic responses to treatment of the blood serum with potassium iodid and silver nitrite, followed by a hydrochinon photographic developer. Also the diverse behavior of the freezing point in hyperthyroidism and in exophthalmic goiter.

Münchener medizinische Wochenschrift, Munich

June 30, 1921, **68,** No. 26

The Skin in Relation to Constitution. H. v. Hoesslin.—p. 797
Value of Therapeutic Methods in Syphilis. Spiethoff.—p. 801.
Gonorrheal Tumors of the Adnexa. L. Zill.—p. 803.
Intestinal Obstruction from Retroperitoneal Hematomas. Kaiser.—p. 805.
Hemoglobinuric Relapses in Retrogressive, Acute, Hemorrhagic Glomerulonephritis. A. Bittorf.—p. 807.
Speed of Sedimentation of Red Corpuscles in Infancy; Especially in Congenital Syphilis. P. György.—p. 808.
Blood and Metabolism Tests under Radium. J. Hauenstein.—p. 809.
Roentgenotherapy in Carcinoma of Mouth. W. Baensch.—p. 810.
Early Diagnosis of Spondylitis. R. Schwank.—p. 810.
Treatment of Rachitic Kyphosis. L. Aubry.—p. 811.
Luminal for Nocturnal Emissions. J. Donath.—p. 812.
Secondary Infection with Diphtheria Bacilli in Condylomas in Children with Hereditary Syphilis. W. Hedrich.—p. 813.
Influenza with Hemorrhagic Pleural Effusion. Krayn.—p. 814.
Edema in Infancy. K. Ochsenius.—p. 815.
Percussion Phenomena as Supported by Auscultation. Wiener.—p. 815.
Treatment of Malaria. B. Nocht.—p. 816.

Therapeutische Halbmonatshefte, Berlin

May 1, 1921, **35,** No. 9

Treatment of Lupus in General Practice. Engwer.—p. 257.
Functional Treatment of Bone Fractures. G. Magnus.—p. 264.
Protein Therapy in General Practice. P. Kaznelson.—p. 266.

Wiener klinische Wochenschrift, Vienna

June 30, 1921, **34,** No. 26

*Treatment of Carcinoma of the Uterus. L. Adler.—p. 312.
Surgical Treatment of Destructive Lung Affections. Denk.—p. 313.
Calcium Metabolism and Internal Secretions. Bauer.—p. 314.
*Roentgen Irradiation of Pointed Condylomas. R. O. Stein.—p. 315.
Pemphigoid Skin Eruption in Lymphatic Leukemia. Sachs.—p. 317.

Treatment of Carcinoma of the Uterus.—Adler states that, for the present, every operable carcinoma should be operated on. In view of the fact that the lasting results of both methods are much the same, the question as to whether laparotomy should be performed or whether the vaginal route should be chosen depends in the main on the personal technic of the operator, unless a contraindication to one or the other method exists. Personally, Adler prefers the extended vaginal operation as being less dangerous and yielding equally as good results. Every carcinoma that is operated on should receive prophylactic after-treatment with radium and roentgen rays. He regards the plan of introducing radium immediately after the operation as a promising feature of modern treatment.

Roentgen Irradiation of Pointed Condylomas.—Stein reports the results of roentgen irradiation in fourteen cases of condylomata acuminata. In six cases a complete cure was effected; marked improvement in five; two patients were not benefited materially, and one received only the initial treatment. The rapidly growing, moist tumor-like warts, resembling cauliflower and with broad base, the surgical removal of which from the external genital organs has often proved difficult on account of severe hemorrhage and extensive postoperative scar formation, were found to react promptly to roentgen irradiation. On the other hand, small pointed warts, whether single or in groups, were rather resistant to roentgen rays, and their surgical removal is to be preferred.

Zentralblatt für Chirurgie, Leipzig

July 2, 1921, **48,** No. 26

*"Surgery of the Stomach." E. Schwarz.—p. 926.
Modified Type of Wire Frame Splint for Leg. Münstermann.—p. 931.
Spring Paper-Clasp in Place of Arterial Clamp. Hofmann.—p. 933.

"Surgery of the Stomach."—This is a critical comment on O. Orth's article with this title in the *Deutsche Zeitschrift für klinische Chirurgie,* **161,** No. 1-2.

Zentralblatt für innere Medizin, Leipzig

July 2, 1921, **42,** No. 26

Arneth's Qualitative Blood Theory. E. Becher.—p. 521

Finska Läkaresällskapets Handlingar, Helsingfors

May-June, 1921, **63,** No. 5-6

*Syphilis of the Central Nervous System. J. Hagelstam.—p. 223.
*Visceral Syphilis. H. C. Jacobæus.—p. 241.
*Tertiary Syphilis of the Liver. T. W. Tallqvist.—p. 261.
*Action of Gymnastic Exercises on Metabolism. D. Ranchen.—p. 277.

Syphilis of the Central Nervous System.—Hagelstam compares the various theories in regard to the pathogenesis, etc., of neurosyphilis, his article being one of the principal addresses at the recent Scandinavian Internal Medicine Congress mentioned in the Helsingfors Letter, p. 750. He comments on the frequent intensity of the meningeal reaction to the syphilis; in one of his cases a man of 22, previously healthy, had had a urethral discharge for two months. During the last three weeks there had been severe headache, most intense in the night and toward morning, with dizziness when he tried to sit up, and he vomited everything he ate. The neck was not stiff and the reflexes were normal. Numerous small hard glands could be palpated in the groin and back of the neck. The Wassermann test was negative but lymphocytes were numerous in the lumbar puncture fluid which was under high pressure. No benefit was derived from antipyrin or caffein but all the symptoms subsided under potassium iodid. He was given later a course of inunctions and has had no return of symptoms during the seven years to date. Syphilitic meningitis generally runs an afebrile course, but one young woman developed meningitic symptoms and a remittent fever under mercurial treatment, both persisting in spite of energetic mercurial treatment until a change to arsphenamin finally brought about a cure. Hagelstam has not been able to find but one other case on record in which meningeal symptoms developed in the course of mercurial treatment, and in a recent trip to Germany could not learn of any instance of recurring neurosyphilis in connection with mercurial treatment. This makes it the more remarkable that in his own 121 cases of cerebral and cerebrospinal syphilis, since 1913, in twenty-six the first symptoms of it had developed during or at most within six weeks after the close of the course of specific mercurial treatment, sometimes plus one or two injections of neo-arsphenamin. He says that the alleged nonexistence of tabes and general paresis in Turkey has been disproved by Fleischmann's experience during two and a half years there during the war. War conditions modified the customs so that the foreign physicians were not kept at such a distance. Previously it had been considered a religious duty to keep the mentally sick away from the infidel physicians. A Japanese reported at the recent neurology congress at Paris a somewhat similar experience. Hagelstam quoted Catsaras to the effect that a congenital or acquired nervous predisposition can be detected in every instance of the neurotropic manifestations of syphilis. Stern has reported that 50 per cent. of all his patients with tabes or general paresis were of the asthenia universalis type, and a further 35 per cent. showed abnormal thyroid functioning. General paresis seemed to affect preferably the thyroid insufficiency cases.

Visceral Syphilis.—Jacobæus discussed the differential diagnosis and the clinical picture of syphilitic disease of the different internal organs. He said of the lungs that this is the most uncertain field of research in syphilis; even the absence of tubercle bacilli from the sputum and benefit from specific treatment for syphilis are not decisive. In one of his own cases a man with a history of syphilitic infection twenty years before had a febrile pulmonary affection with localization in the upper half of one lung and in the apex in the other; no reaction to the Wassermann test; no tubercle bacilli in the sputum. Chronic pneumonia was assumed by the consultants, but under tentative treatment for syphilis the whole subsided in a month or two. In a second similar case but without known syphilis in the antecedents, although the luetin reaction was positive, Wassermann negative, treatment as for syphilis was followed by slight improvement but only at first. Necropsy a few years later disclosed conditions which might be assumed to testify to syphilis but there were also processes containing tubercle bacilli. There may have been a combination of both diseases. He cites a case in which a supposed tuberculous cavity in the upper lobe was treated by artificial pneumothorax. It induced some improvement, but treatment as for syphilis was tried and the lesion promptly healed; he explains the case as originally a gumma which broke down into a cavity.

Syphilitic Disease of the Liver.—Tallqvist relates that syphilitic disease of the liver was found in one female and in 7 male adult cadavers among the 2,117 inspected during the ten years ending with 1919, a proportion of 0.38 per cent. In a practice registering 24,433 patients in twenty-five years there were 16 men and 12 women with tertiary syphilitic disease of the liver. They formed 0.88 per cent. of his total syphilitic patients, and in his private practice, with 11,000 patients, 0.06 per cent. Between infection and the first symptoms the interval ranged from three to thirty-two years, with an average of eighteen. The ages ranged from 23 to 67, and in the youngest patient the syphilis was inherited. In 3 cases husband and wife were affected. Neurosyphilis practically never accompanied the syphilitic hepatitis. Loss of strength, of weight and of appetite, and dyspepsia without secretory or motor derangement of the stomach were common, and the liver was enlarged in 75 per cent. of the cases. There was spontaneous pain in 50 per cent., simulating gallstone attacks in a few patients. Tenderness on deep pressure is instructive but less common. The spleen was enlarged in 31.4 per cent. and a still larger proportion was found at necropsies. There was irregular fever in 50 per cent. In one case this fever was the first and only symptom for a time in the previously apparently healthy woman. The peak was towards evening, with sweats. After futile treatment on the presumptive diagnosis of influenza, typhoid and malaria for two and a half months, miliary tuberculosis was assumed, from the lack of subjective and objective findings in any organ, until the Wassermann reaction gave the clue. The third day after potassium iodid had been given the fever disappeared.

Influence of Exercise on Metabolism.—Rancken's research was done on a physician of 45, the gaseous interchanges and other metabolic findings being recorded before, during and after series of gymnastic exercises according to special systems, marches, dancing, and during repose. His conclusion is that the influence on the metabolism of gymnastic exercises has been overestimated and the participation of other factors underestimated.

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Superiority of Alcoholic Solutions of Silver Salt in Treatment of Gonorrheal Urethritis in Men. H. Haxthausen.—p. 401. Conc'n. Pathogenesis of Paralysis Agitans. V. Christiansen.—p. 406.

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*Defective Vision in Schoolchildren. E. Holm.—p 417.
*Sigmoid-Bladder Fistula. S. V. Bagger.—p. 424. Conc'n No. 28, p. 433.

Schoolchildren with Defective Vision.—Berlin, Strasbourg and Mülhausen have special schools for children whose vision is 5/24 or below in their best eye after correction. Holm reports the results of an inquiry among the schoolchildren of Copenhagen to find whether the number with defective vision justified arrangements for a special school of the kind. Only 0.032 per cent. were found, while the proportion in Berlin is 0.048 and nearly a fifth have extreme myopia. No child was found with defective vision from this cause in Copenhagen.

Fistula Between Bladder and Sigmoid Flexure.—Bagger discovered a fistula of this kind in two cases, evidently the result of chronic sigmoiditis. Air and feces in the urine and urine in the stools occur at times, and the irritation sets up cystitis, urethritis and possibly pyelonephritis, with pains at micturition and frequent desires, etc. Spontaneous recovery is known in a few instances and in one case the fistula healed under conservative measures, tonics, dieting, posture, enemas, lavage of bladder, etc., but the general advice is to operate and as early as possible to ward off further complications.

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*Clinical Research on the Capillaries. II. K. Secher.—p. 863.

July 7, 1921, **83**, No. 27

Butter-Flour Soup in Infant Feeding. V. Poulsen.—p. 891.
*The Pressure in the Capillaries. III. K. Secher.—p. 899.
Influenza Statistics. A. Arnold-Larsen.—p. 903.

Research on the Capillaries.—In this second article, Secher describes the aspect of the capillaries under various conditions of the circulation, etc., giving illustrations of the capillariscope findings. In the third article he reports research on the pressure in the capillaries.